

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Aaboud, M; Aad, G; Abbott, B; Abdinov, O; Abeloos, B; Abhayasinghe, DK; Abidi, SH; AbouZeid, OS; Abraham, NL; Abramowicz, H; Abreu, H; Abulaiti, Y; Acharya, BS; Adachi, S; Adamczyk, L; Adelman, J; Adersberger, M; Adiguzel, A; Adye, T; Affolder, AA; Afik, Y; Agheorghiesei, C; Aguilar-Saavedra, JA; Ahmadov, F; Aielli, G; Akatsuka, S; Akesson, TPA; Akilli, E; Akimov, AV; Alberghi, GL; Albert, J; Albicocco, P; Verzini, MJA; Alderweireldt, S; Aleksa, M; Aleksandrov, IN; Alexa, C; Alexopoulos, T; Alhroob, M; Ali, B; Alimonti, G; Alison, J; Alkire, SP; Allaire, C; Allbrooke, BMM; Allen, BW; Allport, PP; Aloisio, A; Alonso, A; Alonso, F; Alpigiani, C; Alshehri, AA; Alstaty, MI; Gonzalez, BA; Alvarez Piqueras, D; Alviggi, MG; Amadio, BT; Coutinho, YA; Ambroz, L; Amelung, C; Amidei, D; Amor Dos Santos, SP; Amoroso, S; Amrouche, CS; Anastopoulos, C; Ancu, LS; Andari, N; Andeen, T; Anders, CF; Anders, JK; Anderson, KJ; Andreazza, A; Andrei, V; Anelli, CR; Angelidakis, S; Angelozzi, I; Angerami, A; Anisenkov, AV; Annovi, A; Antel, C; Anthony, MT; Antonelli, M; Antrim, DJA; Anulli, F; Aoki, M; Aparisi Pozo, JA; Aperio Bella, L; Arabidze, G; Araque, JP; Araujo Ferraz, V; Araujo Pereira, R; Arce, ATH; Ardell, RE; Arduh, FA; Arguin, J-F; Argyropoulos, S; Armbruster, AJ; Armitage, LJ; Armstrong, A; Arnaez, O; Arnold, H; Arratia, M; Arslan, O; Artamonov, A; Artoni, G; Artz, S; Asai, S; Asbah, N; Ashkenazi, A; Asimakopoulou, EM; Asquith, L; Assamagan, K; Astalos, R; Atkin, RJ; Atkinson, M; Atlay, NB; Augsten, K; Avolio, G; Avramidou, R; Ayoub, MK; Azuelos, G; Baas, AE; Baca, MJ; Bachacou, H; Bachas, K; Backes, M; Bagnaia, P; Bahmani, M; Bahrasemani, H; Bailey, AJ; Baines, JT; Bajic, M; Bakalis, C; Baker, OK; Bakker, PJ; Gupta, DB; Baldin, EM; Balek, P; Balli, F; Balunas, WK; Balz, J; Banas, E; Bandyopadhyay, A; Banerjee, S; Bannoura, AAE; Barak, L; Barbe, WM; Barberio, EL; Barberis, D; Barbero, M; Barillari, T; Barisits, M-S; Barkeloo, J; Barklow, T; Barlow, N; Barnea, R; Barnes, SL; Barnett, BM; Barnett, RM; Barnovska-Blenessy, Z; Baroncelli, A; Barone, G; Barr, AJ; Barranco Navarro, L; Barreiro, F; Barreiro Guimaraes da Costa, J; Bartoldus, R; Barton, AE; Bartos, P; Basalaev, A; Bassalat, A; Bates, RL; Batista, SJ; Batlamous, S; Batley, JR; Battaglia, M; Bause, M; Bauer, F; Bauer, KT; Bawa, HS; Beacham, JB; Beau, T; Beauchemin, PH; Bechtel, P; Beck, HC; Beck, HP; Becker, K; Becker, M; Becot, C; Beddall, A; Beddall, AJ; Bednyakov, VA; Bedognetti, M; Bee, CP; Beermann, TA; Begalli, M; Begel, M; Behera, A; Behr, JK; Bell, AS; Bella, G; Bellagamba, L; Bellerive, A; Bellomo, M; Bellos, P; Belotskiy, K; Belyaev, NL; Benary, O; Benchekrout, D; Bender, M; Benekos, N; Benhammou, Y; Benhar Noccioli, E; Benitez, J; Benjamin, DP; Benoit, M; Bensinger, JR; Bentvelsen, S; Beresford, L; Beretta, M; Berge, D; Bergeaas Kuutmann, E; Berger, N; Bergsten, LJ; Beringer, J; Berlendis, S; Bernard, NR; Bernardi, G; Bernius, C; Bernlochner, FU; Berry, T; Berta, P; Bertella, C; Bertoli, G; Bertram, IA; Besjes, GJ; Bessidskaia Bylund, O; Bessner, M; Besson, N; Bethani, A; Bethke, S; Betti, A; Bevan, AJ; Beyer, J; Bianchi, RM; Biebel, O; Biedermann, D; Bielski, R; Bierwagen, K; Biesuz, NV; Biglietti, M; Billoud, TRV; Bindi, M; Bingul, A; Bini, C; Biondi, S; Birman, M; Bisanz, T; Biswal, JP; Bittrich,

C;Bjergaard, DM;Black, JE;Black, KM;Blazek, T;Bloch, I;Blocker, C;Blue, A;Blumenschein, U;Blunier, D;Bobbink, GJ;Bobrovnikov, VS;Bocchetta, SS;Bocci, A;Boerner, D;Bogavac, D;Bogdanchikov, AG;Bohm, C;Boisvert, V;Bokan, P;Bold, T;Boldyrev, AS;Bolz, AE;Bomben, M;Bona, M;Bonilla, JS;Boonekamp, M;Borisov, A;Borissov, G;Bortfeldt, J;Bortoletto, D;Bortolotto, V;Boscherini, D;Bosman, M;Bossio Sola, JD;Bouaouda, K;Boudreau, J;Bouhova-Thacker, EV;Boumediene, D;Bourdarios, C;Boutle, SK;Boveia, A;Boyd, J;Boye, D;Boyko, IR;Bozson, AJ;Bracinik, J;Brahimi, N;Brandt, A;Brandt, G;Brandt, O;Braren, F;Bratzler, U;Brau, B;Brau, JE;Madden, WDB;Brendlinger, K;Brennan, AJ;Brenner, L;Brenner, R;Bressler, S;Brickwedde, B;Briglin, DL;Britton, D;Britzger, D;Brock, I;Brock, R;Brooijmans, G;Brooks, T;Brooks, WK;Brost, E;Broughton, JH;Bruckman de Renstrom, PA;Bruncko, D;Bruni, A;Bruni, G;Bruni, LS;Bruno, S;Brunt, BH;Bruschi, M;Bruscino, N;Bryant, P;Bryngemark, L;Buanes, T;Buat, Q;Buchholz, P;Buckley, AG;Budagov, IA;Bugge, MK;Buehrer, F;Bulekov, O;Bullock, D;Burch, TJ;Burdin, S;Burgard, CD;Burger, AM;Burghgrave, B;Burka, K;Burke, S;Burmeister, I;Burr, JTP;Buescher, D;Buescher, V;Buschmann, E;Bussey, P;Butler, JM;Buttar, CM;Butterworth, JM;Butti, P;Buttinger, W;Buzatu, A;Buzykaev, AR;Cabras, G;Cabrera Urban, S;Caforio, D;Cai, H;Cairo, VMM;Cakir, O;Calace, N;Calafiura, P;Calandri, A;Calderini, G;Calfayan, P;Callea, G;Caloba, LP;Calvente Lopez, S;Calvet, D;Calvet, S;Calvet, TP;Calvetti, M;Toro, RC;Camarda, S;Camarri, P;Cameron, D;Armadians, RC;Camincher, C;Campana, S;Campanelli, M;Camplani, A;Campoverde, A;Canale, V;Bret, MC;Cantero, J;Cao, T;Cao, Y;Capeans Garrido, MDM;Caprini, I;Caprini, M;Capua, M;Carbone, RM;Cardarelli, R;Cardillo, FC;Carli, I;Carli, T;Carlino, G;Carlson, BT;Carminati, L;Carney, RMD;Caron, S;Carquin, E;Carra, S;Carrillo-Montoya, GD;Casadei, D;Casado, MP;Casha, AF;Casper, DW;Castelijn, R;Castillo, FL;Castillo Gimenez, V;Castro, NF;Catinaccio, A;Catmore, JR;Cattai, A;Caudron, J;Cavaliere, V;Cavallaro, E;Cavalli, D;Cavalli-Sforza, M;Cavasinni, V;Celebi, E;Ceradini, F;Cerdeja Alberich, L;Cerqueira, AS;Cerri, A;Cerrito, L;Cerutti, F;Cervelli, A;Cetin, SA;Chafaq, A;Chakraborty, D;Chan, SK;Chan, WS;Chan, YL;Chapman, JD;Chargeishvili, B;Charlton, DG;Chau, CC;Barajas, CAC;Che, S;Chegwidden, A;Chekanov, S;Chekulaev, SV;Chelkov, GA;Chelstowska, MA;Chen, C;Chen, CH;Chen, H;Chen, J;Chen, J;Chen, S;Chen, SJ;Chen, X;Chen, Y;Chen, Y-H;Cheng, HC;Cheng, HJ;Cheplakov, A;Cheremushkina, E;El Moursli, RC;Cheu, E;Cheung, K;Chevalier, L;Chiarella, V;Chiarelli, G;Chiodini, G;Chisholm, AS;Chitan, A;Chiu, I;Chiu, YH;Chizhov, MV;Choi, K;Chomont, AR;Chouridou, S;Chow, YS;Christodoulou, V;Chu, MC;Chudoba, J;Chuinard, AJ;Chwastowski, JJ;Chytka, L;Cinca, D;Cindro, V;Cioara, IA;Ciocio, A;Ciotto, F;Citron, ZH;Citterio, M;Clark, A;Clark, MR;Clark, PJ;Clement, C;Coadou, Y;Cobal, M;Cocco, A;Cochran, J;Cohen, H;Coimbra, AEC;Colasurdo, L;Cole, B;Colijn, AP;Collot, J;Muino, PC;Coniavitis, E;Connell, SH;Connolly, IA;Constantinescu, S;Conventi, F;Cooper-Sarkar, AM;Cormier, F;Cormier, KJR;Corpe, LD;Corradi, M;Corrigan, EE;Corriveau, F;Cortes-Gonzalez, A;Costa, MJ;Costanzo, D;Cottin, G;Cowan, G;Cox, BE;Crane, J;Cranmer, K;Crawley, SJ;Creager, RA;Cree, G;Crepe-Renaudin, S;Crescioli, F;Cristinziani, M;Croft, V;Crosetti, G;Cueto, A;Donszelmann, TC;Cukierman, AR;Cuth, J;Czekierda, S;Czodrowski, P;Da Cunha Sargedass De Sousa, MJ;Da Via, C;Dabrowski, W;Dado, T;Dahbi, S;Dai, T;Dallaire, F;Dallapiccola, C;Dam, M;D'amen, G;Damp, J;Dandoy, JR;Daneri, MF;Dang, NP;Dann, ND;Danninger, M;Dao, V;Darbo, G;Darmora, S;Dartsi, O;Dattagupta, A;Daubney, T;D'Auria, S;Davey, W;David, C;Davidek, T;Davis, DR;Dawe, E;Dawson, I;De, K;De Asmundis, R;De Benedetti, A;De Beurs, M;De Castro, S;De Cecco, S;De Groot, N;de Jong, P;De la Torre, H;De Lorenzi, F;De Maria, A;De Pedis, D;De Salvo, A;De Sanctis, U;De Santis, M;De Santo, A;Corga, KDV;De Regie, JBDV;Debenedetti, C;Dedovich, DV;Dehghanian, N;Gaudio, MD;Del Peso, J;Diaz, YD;Delgove, D;Deliot, F;Delitzsch, CM;Della Pietra, M;Della Volpe, D;Dell'Acqua, A;Dell'Asta, L;Delmastro, M;Delporte, C;Delsart, PA;DeMarco,

DA;Demers, S;Demichev, M;Denisov, SP;Denysiuk, D;D'Eramo, L;Derendarz, D;Derkaoui, JE;Derue, F;Dervan, P;Desch, K;Deterre, C;Dette, K;Devesa, MR;Deviveiros, PO;Dewhurst, A;Dhaliwal, S;Di Bello, FA;Di Ciaccio, A;Di Ciaccio, L;Di Clemente, WK;Di Donato, C;Di Girolamo, A;Di Micco, B;Di Nardo, R;Di Petrillo, KF;Di Sipio, R;Di Valentino, D;Diaconu, C;Diamond, M;Dias, FA;Do Vale, TD;Diaz, MA;Dickinson, J;Diehl, EB;Dietrich, J;Diez Cornell, S;Dimitrievska, A;Dingfelder, J;Dittus, F;Djama, F;Djobava, T;Djuvsland, JI;Do Vale, MAB;Dobre, M;Dodsworth, D;Doglioni, C;Dolejsi, J;Dolezal, Z;Donadelli, M;Donini, J;D'onofrio, A;D'Onofrio, M;Dopke, J;Doria, A;Dova, MT;Doyle, AT;Drechsler, E;Dreyer, E;Dreyer, T;Du, Y;Duarte-Campderros, J;Dubinin, F;Dubovsky, M;Dubreuil, A;Duchovni, E;Duckeck, G;Ducourthial, A;Ducu, OA;Duda, D;Dudarev, A;Dudder, AC;Duffield, EM;Duflot, L;Duehrssen, M;Duelsen, C;Dumancic, M;Dumitriu, AE;Duncan, AK;Dunford, M;Duperrin, A;Yildiz, HD;Dueren, M;Durglishvili, A;Duschinger, D;Dutta, B;Duvnjak, D;Dyndal, M;Dysch, S;Dziedzic, BS;Eckardt, C;Ecker, KM;Edgar, RC;Eifert, T;Eigen, G;Einsweiler, K;Ekelof, T;El Kacimi, M;El Kosseifi, R;Ellajosyula, V;Ellert, M;Ellinghaus, F;Elliot, AA;Ellis, N;Elmsheuser, J;Elsing, M;Emeliyanov, D;Enari, Y;Ennis, JS;Epland, MB;Erdmann, J;Ereditato, A;Errede, S;Escalier, M;Escobar, C;Estrada Pastor, O;Etienvre, Al;Etzion, E;Evans, H;Ezhilov, A;Ezzi, M;Fabbri, F;Fabbri, L;Fabiani, V;Facini, G;Pereira, RMFR;Fakhrutdinov, RM;Falciano, S;Falke, PJ;Falke, S;Faltova, J;Fang, Y;Fanti, M;Farbin, A;Farilla, A;Farina, EM;Farooque, T;Farrell, S;Farrington, SM;Farthouat, P;Fassi, F;Fassnacht, P;Fassouliotis, D;Giannelli, MF;Favareto, A;Fawcett, WJ;Fayard, L;Fedin, OL;Fedorko, W;Feickert, M;Feigl, S;Feligioni, L;Feng, C;Feng, EJ;Feng, M;Fenton, MJ;Fenyuk, AB;Feremenga, L;Ferrando, J;Ferrari, A;Ferrari, P;Ferrari, R;de Lima, DEF;Ferrer, A;Ferrere, D;Ferretti, C;Fiedler, F;Filipcic, A;Filthaut, F;Finelli, KD;Fiolhais, MCN;Fiorini, L;Fischer, C;Fisher, WC;Flaschel, N;Fleck, I;Fleischmann, P;Fletcher, RRM;Flick, T;Flierl, BM;Flores, LM;Castillo, LRF;Follega, FM;Fomin, N;Forcolin, GT;Formica, A;Foerster, FA;Forti, AC;Foster, AG;Fournier, D;Fox, H;Fracchia, S;Francavilla, P;Franchini, M;Franchino, S;Francis, D;Franconi, L;Franklin, M;Frate, M;Fraternali, M;Freeborn, D;Fressard-Batraneanu, SM;Freund, B;Freund, WS;Frizzell, DC;Froidevaux, D;Frost, JA;Fukunaga, C;Fullana Torregrosa, E;Fusayas, T;Fuster, J;Gabizon, O;Gabrielli, A;Gabrielli, A;Gach, GP;Gadatsch, S;Gadow, P;Gagliardi, G;Gagnon, LG;Galea, C;Galhardo, B;Gallas, EJ;Gallop, BJ;Gallus, P;Galster, G;Goni, RG;Gan, KK;Ganguly, S;Gao, J;Gao, Y;Gao, YS;Garcia, C;Garcia Navarro, JE;Garcia Pascual, JA;Garcia-Sciveres, M;Gardner, RW;Garelli, N;Garonne, V;Gasnikova, K;Gaudiello, A;Gaudio, G;Gavrilenko, IL;Gavrilyuk, A;Gay, C;Gaycken, G;Gazis, EN;Gee, CNP;Geisen, J;Geisen, M;Geisler, MP;Gellerstedt, K;Gemme, C;Genest, MH;Geng, C;Gentile, S;George, S;Gerbaudo, D;Gessner, G;Ghasemi, S;Bostanabad, MG;Ghneimat, M;Giacobbe, B;Giagu, S;Giangiacomi, N;Giannetti, P;Giannini, A;Gibson, SM;Gignac, M;Gillberg, D;Gilles, G;Gingrich, DM;Giordani, MP;Giorgi, FM;Giraud, PF;Giromini, P;Giugliarelli, G;Giugni, D;Giuli, F;Giulini, M;Gkaitatzis, S;Gkialas, I;Gkoukousis, EL;Gkoutoumis, P;Gladilin, LK;Glasman, C;Glatzer, J;Glaysheer, PCF;Glazov, A;Goblirsch-Kolb, M;Godlewski, J;Goldfarb, S;Golling, T;Golubkov, D;Gomes, A;Gama, RG;Goncalo, R;Gonella, G;Gonella, L;Gongadze, A;Gonnella, F;Gonski, JL;Gonzalez de la Hoz, S;Gonzalez-Sevilla, S;Goossens, L;Gorbounov, PA;Gordon, HA;Gorini, B;Gorini, E;Gorisek, A;Goshaw, AT;Goessling, C;Gostkin, MI;Gottardo, CA;Goudet, CR;Goujdami, D;Goussiou, AG;Govender, N;Goy, C;Gozani, E;Grabowska-Bold, I;Gradin, POJ;Graham, EC;Gramling, J;Gramstad, E;Grancagnolo, S;Gratchev, V;Gravila, PM;Gravili, FG;Gray, C;Gray, HM;Greenwood, ZD;Grefe, C;Gregersen, K;Gregor, IM;Grenier, P;Grevtsov, K;Grieser, NA;Griffiths, J;Grillo, AA;Grimm, K;Grinstein, S;Gris, P;Grivaz, J-F;Groh, S;Gross, E;Grosse-Knetter, J;Grossi, GC;Grout, ZJ;Grud, C;Grummer, A;Guan, L;Guan, W;Guenther, J;Guerguichon, A;Guescini, F;Guest, D;Gugel, R;Gui, B;Guillemin, T;Guindon, S;Gul, U;Gumpert, C;Guo, J;Guo, W;Guo, Y;Guo, Z;Gupta,

R;Gurbuz, S;Gustavino, G;Gutelman, BJ;Gutierrez, P;Gutschow, C;Guyot, C;Guzik, MP;Gwenlan, C;Gwilliam, CB;Haas, A;Haber, C;Hadavand, HK;Haddad, N;Hadeif, A;Hageboeck, S;Hagihara, M;Hakobyan, H;Haleem, M;Haley, J;Halladjian, G;Hallewell, GD;Hamacher, K;Hamal, P;Hamano, K;Hamilton, A;Hamity, GN;Han, K;Han, L;Han, S;Hanagaki, K;Hance, M;Handl, DM;Haney, B;Hankache, R;Hanke, P;Hansen, E;Hansen, JB;Hansen, JD;Hansen, MC;Hansen, PH;Hara, K;Hard, AS;Harenberg, T;Harkusha, S;Harrison, PF;Hartmann, NM;Hasegawa, Y;Hasib, A;Hassani, S;Haug, S;Hauser, R;Hauswald, L;Havener, LB;Havranek, M;Hawkes, CM;Hawkings, RJ;Hayden, D;Hayes, C;Hays, CP;Hays, JM;Hayward, HS;Haywood, SJ;Heath, MP;Hedberg, V;Heelan, L;Heer, S;Heidegger, KK;Heilman, J;Heim, S;Heim, T;Heinemann, B;Heinrich, JJ;Heinrich, L;Heinz, C;Hejbal, J;Helary, L;Held, A;Hellesund, S;Hellman, S;Helsens, C;Henderson, RCW;Heng, Y;Henkelmann, S;Henriques Correia, AM;Herbert, GH;Herde, H;Herget, V;Jimenez, YH;Herr, H;Herrmann, MG;Herten, G;Hertenberger, R;Hervas, L;Herwig, TC;Hesketh, GG;Hessey, NP;Hetherly, JW;Higashino, S;Higon-Rodriguez, E;Hildebrand, K;Hill, E;Hill, JC;Hill, KK;Hiller, KH;Hillier, SJ;Hils, M;Hinchliffe, I;Hirose, M;Hirschbuehl, D;Hiti, B;Hladik, O;Hlaluku, DR;Hoad, X;Hobbs, J;Hod, N;Hodgkinson, MC;Hoecker, A;Hoeferkamp, MR;Hoenig, F;Hohn, D;Hohov, D;Holmes, TR;Holzbock, M;Homann, M;Honda, S;Honda, T;Hong, TM;Hoenle, A;Hooberman, BH;Hopkins, WH;Horii, Y;Horn, P;Horton, AJ;Horyn, LA;Hostachy, J-Y;Hostiuc, A;Hou, S;Hoummada, A;Howarth, J;Hoya, J;Hrabovsky, M;Hrdinka, J;Hristova, I;Hrivnac, J;Hrynevich, A;Hryn'ova, T;Hsu, PJ;Hsu, S-C;Hu, Q;Hu, S;Huang, Y;Hubacek, Z;Hubaut, F;Huebner, M;Huegging, F;Huffman, TB;Hughes, EW;Huhtinen, M;Hunter, RFH;Huo, P;Hupe, AM;Huseynov, N;Huston, J;Huth, J;Hyneman, R;Iacobucci, G;Iakovidis, G;Ibragimov, I;Iconomidou-Fayard, L;Idrissi, Z;Iengo, P;Ignazzi, R;Igonkina, O;Iguchi, R;Iizawa, T;Ikegami, Y;Ikeno, M;Iliadis, D;Illic, N;Iltzsche, F;Introzzi, G;Iodice, M;Iordanidou, K;Ippolito, V;Isacson, MF;Ishijima, N;Ishino, M;Ishitsuka, M;Islam, W;Issever, C;Istin, S;Ito, F;Ponce, JMI;luppa, R;Ivina, A;Iwasaki, H;Izen, JM;Izzo, V;Jacka, P;Jackson, P;Jacobs, RM;Jain, V;Jaekel, G;Jakobi, KB;Jakobs, K;Jakobsen, S;Jakoubek, T;Jamin, DO;Jana, DK;Jansky, R;Janssen, J;Janus, M;Janus, PA;Jarlskog, G;Javadov, N;Javurek, T;Javurkova, M;Jeanneau, F;Jeanty, L;Jejelava, J;Jelinskas, A;Jenni, P;Jeong, J;Jezequel, S;Ji, H;Jia, J;Jiang, H;Jiang, Y;Jiang, Z;Jiggins, S;Morales, FAJ;Jimenez Pena, J;Jin, S;Jinaru, A;Jinnouchi, O;Jivan, H;Johansson, P;Johns, KA;Johnson, CA;Johnson, WJ;Jon-And, K;Jones, RWL;Jones, SD;Jones, S;Jones, TJ;Jongmanns, J;Jorge, PM;Jovicevic, J;Ju, X;Junggeburth, JJ;Rozas, AJ;Kaczmarska, A;Kado, M;Kagan, H;Kagan, M;Kaji, T;Kajomovitz, E;Kalderon, CW;Kaluza, A;Kama, S;Kamenshchikov, A;Kanjir, L;Kano, Y;Kantserov, VA;Kanzaki, J;Kaplan, B;Kaplan, LS;Kar, D;Kareem, MJ;Karentzos, E;Karpov, SN;Karpova, ZM;Kartvelishvili, V;Karyukhin, AN;Kashif, L;Kass, RD;Kastanas, A;Kataoka, Y;Kato, C;Katzy, J;Kawade, K;Kawagoe, K;Kawamoto, T;Kawamura, G;Kay, EF;Kazanin, VF;Keeler, R;Kehoe, R;Keller, JS;Kellermann, E;Kempster, JJ;Kendrick, J;Kepka, O;Kersten, S;Kersevan, BP;Keyes, RA;Khader, M;Khalil-Zada, F;Khanov, A;Kharlamov, AG;Kharlamova, T;Khoda, EE;Khodinov, A;Khoo, TJ;Khramov, E;Khubua, J;Kido, S;Kiehn, M;Kilby, CR;Kim, YK;Kimura, N;Kind, OM;King, BT;Kirchmeier, D;Kirk, J;Kiryunin, AE;Kishimoto, T;Kisielewska, D;Kitali, V;Kivernyk, O;Kladiva, E;Klapdor-Kleingrothaus, T;Klein, MH;Klein, M;Klein, U;Kleinknecht, K;Klimek, P;Klimentov, A;Klingenberg, R;Klingl, T;Klioutchnikova, T;Klitzner, FF;Kluit, P;Kluth, S;Kneringer, E;Knoops, EBF;Knue, A;Kobayashi, A;Kobayashi, D;Kobayashi, T;Kobel, M;Kocian, M;Kodys, P;Koenig, PT;Koffas, T;Koffeman, E;Koehler, NM;Koi, T;Kolb, M;Koletsou, I;Kondo, T;Kondrashova, N;Koenke, K;Koenig, AC;Kono, T;Konoplich, R;Konstantinides, V;Konstantinidis, N;Konya, B;Kopeliansky, R;Koperny, S;Korcyl, K;Kordas, K;Koren, G;Korn, A;Korolkov, I;Korolkova, EV;Korotkova, N;Kortner, O;Kortner, S;Kosek, T;Kostyukhin, VV;Kotwal, A;Koulouris, A;Kourkouveli-

Charalampidi, A;Kourkoumelis, C;Kourlitis, E;Kouskoura, V;Kowalewska, AB;Kowalewski, R;Kowalski, TZ;Kozakai, C;Kozanecki, W;Kozhin, AS;Kramarenko, VA;Kramberger, G;Krasnopevtsev, D;Krasny, MW;Krasznahorkay, A;Krauss, D;Kremer, JA;Kretzschmar, J;Krieger, P;Krizka, K;Kroeninger, K;Kroha, H;Kroll, J;Kroll, J;Krstic, J;Kruchonak, U;Krueger, H;Krumnack, N;Kruse, MC;Kubota, T;Kuday, S;Kuechler, JT;Kuehn, S;Kugel, A;Kuger, F;Kuhl, T;Kukhtin, V;Kukla, R;Kulchitsky, Y;Kuleshov, S;Kulinich, YP;Kuna, M;Kunigo, T;Kupco, A;Kupfer, T;Kuprash, O;Kurashige, H;Kurchaninov, LL;Kurochkin, YA;Kurth, MG;Kuwertz, ES;Kuze, M;Kvita, J;Kwan, T;La Rosa, A;Navarro, JLLR;La Rotonda, L;La Ruffa, F;Lacasta, C;Lacava, F;Lacey, J;Lack, DPJ;Lacker, H;Lacour, D;Ladygin, E;Lafaye, R;Laforge, B;Lagouri, T;Lai, S;Lammers, S;Lampl, W;Lancon, E;Landgraf, U;Landon, MPJ;Lanfermann, MC;Lang, VS;Lange, JC;Langenberg, RJ;Lankford, AJ;Lanni, F;Lantzsch, K;Lanza, A;Lapertosa, A;Laplace, S;Laporte, JF;Lari, T;Manghi, FL;Lassnig, M;Lau, TS;Laudrain, A;Lavorgna, M;Law, AT;Laycock, P;Lazzaroni, M;Le, B;Le Dortz, O;Le Guirriec, E;Le Quilleuc, EP;LeBlanc, M;LeCompte, T;Ledroit-Guillon, F;Lee, CA;Lee, GR;Lee, L;Lee, SC;Lefebvre, B;Lefebvre, M;Legger, F;Leggett, C;Lehmann, K;Lehmann, N;Miotto, GL;Leight, WA;Leisos, A;Leite, MAL;Leitner, R;Lellouch, D;Lemmer, B;Leney, KJC;Lenz, T;Lenzi, B;Leone, R;Leone, S;Leonidopoulos, C;Lerner, G;Leroy, C;Les, R;Lesage, AAJ;Lester, CG;Levchenko, M;Leveque, J;Levin, D;Levinson, LJ;Lewis, D;Li, B;Li, C-Q;Li, H;Li, L;Li, Q;Li, QY;Li, S;Li, X;Li, Y;Liang, Z;Liberti, B;Liblong, A;Lie, K;Liem, S;Limosani, A;Lin, CY;Lin, K;Lin, TH;Linck, RA;Lindon, JH;Lindquist, BE;Lionti, AL;Lipeles, E;Lipniacka, A;Lisovyi, M;Liss, TM;Lister, A;Litke, AM;Little, JD;Liu, B;Liu, BL;Liu, HB;Liu, H;Liu, JB;Liu, JKK;Liu, K;Liu, M;Liu, P;Liu, Y;Liu, YL;Liu, YW;Livan, M;Lleres, A;Merino, JL;Lloyd, SL;Lo, CY;Sterzo, FL;Lobodzinska, EM;Loch, P;Lohse, T;Lohwasser, K;Lokajicek, M;Long, BA;Long, JD;Long, RE;Longo, L;Looper, KA;Lopez, JA;Paz, IL;Solis, AL;Lorenz, J;Martinez, NL;Losada, M;Loesel, PJ;Loesle, A;Lou, X;Lou, X;Lounis, A;Love, J;Love, PA;Lozano Bahilo, JJ;Lu, H;Lu, M;Lu, N;Lu, YJ;Lubatti, HJ;Luci, C;Lucotte, A;Luedtke, C;Luehring, F;Luise, I;Luminari, L;Lund-Jensen, B;Lutz, MS;Luzi, PM;Lynn, D;Lysak, R;Lytken, E;Lyu, F;Lyubushkin, V;Ma, H;Ma, LL;Ma, Y;Maccarrone, G;Macchiolo, A;Macdonald, CM;Miguens, JM;Madaffari, D;Madar, R;Mader, WF;Madsen, A;Madysa, N;Maeda, J;Maekawa, K;Maeland, S;Maeno, T;Maeviskiy, AS;Magerl, V;Maidantchik, C;Maier, T;Maio, A;Majersky, O;Majewski, S;Makida, Y;Makovec, N;Malaescu, B;Malecki, P;Maleev, VP;Malek, F;Mallik, U;Malon, D;Malone, C;Maltezos, S;Malyukov, S;Mamuzic, J;Mancini, G;Mandic, I;Maneira, J;Manhaes de Andrade Filho, L;Manjarres Ramos, J;Mankinen, KH;Mann, A;Manousos, A;Mansoulie, B;Mansour, JD;Mantoani, M;Manzoni, S;Marceca, G;March, L;Marchese, L;Marchiori, G;Marcisovsky, M;Tobon, CAM;Marjanovic, M;Marley, DE;Marroquim, F;Marshall, Z;Martensson, MUF;Marti-Garcia, S;Martin, CB;Martin, TA;Martin, VJ;Latour, BMD;Martinez, M;Otschoorn, VIM;Martin-Haugh, S;Martoiu, VS;Martyniuk, AC;Marzin, A;Masetti, L;Mashimo, T;Mashinistov, R;Masik, J;Maslennikov, AL;Mason, LH;Massa, L;Massarotti, P;Mastrandrea, P;Mastroberardino, A;Masubuchi, T;Maettig, P;Maurer, J;Macek, B;Maxfield, SJ;Maximov, DA;Mazini, R;Maznas, I;Mazza, SM;McFadden, NC;McGoldrick, G;McKee, SP;McCarn, A;McCarthy, TG;McClymont, LI;McDonald, EF;Mcfayden, JA;Mchedlidze, G;McKay, MA;McLean, KD;McMahon, SJ;McNamara, PC;McNicol, CJ;McPherson, RA;Mdhluli, JE;Meadows, ZA;Meehan, S;Megy, TM;Mehlase, S;Mehta, A;Meideck, T;Meirose, B;Melini, D;Garcia, BRM;Mellenthin, JD;Melo, M;Meloni, F;Melzer, A;Menary, SB;Gouveia, EDM;Meng, L;Meng, XT;Mengarelli, A;Menke, S;Meoni, E;Mergelmeyer, S;Merlassino, C;Mermod, P;Merola, L;Meroni, C;Merritt, FS;Messina, A;Metcalf, J;Mete, AS;Meyer, C;Meyer, J;Meyer, J-P;Theenhausen, HMZ;Miano, F;Middleton, RP;Mijovic, L;Mikenberg, G;Mikestikova, M;Mikuz, M;Milesi, M;Milic, A;Millar, DA;Miller, DW;Milov, A;Milstead, DA;Minaenko, AA;Moya, MM;Minashvili, IA;Mincer, AI;Mindur, B;Mineev, M;Minegishi,

Y;Ming, Y;Mir, LM;Mirto, A;Mistry, KP;Mitani, T;Mitrevski, J;Mitsou, VA;Miucci, A;Miyagawa, PS;Mizukami, A;Mjoernmark, JU;Mkrtchyan, T;Mlynarikova, M;Moa, T;Mochizuki, K;Mogg, P;Mohapatra, S;Molander, S;Moles-Valls, R;Mondragon, MC;Moenig, K;Monk, J;Monnier, E;Montalbano, A;Berlingen, JM;Monticelli, F;Monzani, S;Morange, N;Moreno, D;Moreno Llacer, M;Morettini, P;Morgenstern, M;Morgenstern, S;Mori, D;Morii, M;Morinaga, M;Morisbak, V;Morley, AK;Mornacchi, G;Morris, AP;Morris, JD;Morvaj, L;Moschovakos, P;Mosidze, M;Moss, HJ;Moss, J;Motohashi, K;Mount, R;Mountricha, E;Moyse, EJW;Muanza, S;Mueller, F;Mueller, J;Mueller, RSP;Muenstermann, D;Mullier, GA;Sanchez, FJM;Murin, P;Murray, WJ;Murrone, A;Muskinja, M;Mwewa, C;Myagkov, AG;Myers, J;Myska, M;Nachman, BP;Nackenhurst, O;Nagai, K;Nagano, K;Nagasaka, Y;Nagel, M;Nagy, E;Nairz, AM;Nakahama, Y;Nakamura, K;Nakamura, T;Nakano, I;Nanjo, H;Napolitano, F;Garcia, RFN;Narayan, R;Villar, DIN;Naryshkin, I;Naumann, T;Navarro, G;Nayyar, R;Neal, HA;Nechaeva, PY;Neep, TJ;Negri, A;Negrini, M;Nektarijevic, S;Nellist, C;Nelson, ME;Nemecek, S;Nemethy, P;Nessi, M;Neubauer, MS;Neumann, M;Newman, PR;Ng, TY;Ng, YS;Nguyen, HDN;Manh, TN;Nibigira, E;Nickerson, RB;Nicolaidou, R;Nielsen, J;Nikiforou, N;Nikolaenko, V;Nikolic-Audit, I;Nikolopoulos, K;Nilsson, P;Ninomiya, Y;Nisati, A;Nishu, N;Nisius, R;Nitsche, I;Nitta, T;Nobe, T;Noguchi, Y;Nomachi, M;Nomidis, I;Nomura, MA;Nooney, T;Nordberg, M;Norjoharuddeen, N;Novak, T;Novgorodova, O;Novotny, R;Nozka, L;Ntekas, K;Nurse, E;Nutti, F;Oakham, FG;Oberlack, H;Obermann, T;Ocariz, J;Ochi, A;Ochoa, I;Ochoa-Ricoux, JP;O'Connor, K;Oda, S;Odaka, S;Oerdek, S;Oh, A;Oh, SH;Ohm, CC;Oide, H;Ojeda, ML;Okawa, H;Okazaki, Y;Okumura, Y;Okuyama, T;Olariu, A;Seabra, LFO;Pino, SAO;Damazio, DO;Oliver, JL;Olsson, MJR;Olszewski, A;Olszowska, J;O'Neil, DC;Onofre, A;Onogi, K;Onyisi, PUE;Oppen, H;Oreglia, MJ;Oren, Y;Orestano, D;Orgill, EC;Orlando, N;O'Rourke, AA;Orr, RS;Osculati, B;O'Shea, V;Ospanov, R;Otero y Garzon, G;Otono, H;Ouchrif, M;Ould-Saada, F;Ouraou, A;Ouyang, Q;Owen, M;Owen, RE;Ozcan, VE;Ozturk, N;Pacalt, J;Pacey, HA;Pachal, K;Pages, AP;Rodriguez, LP;Aranda, CP;Griso, SP;Paganini, M;Palacino, G;Palazzo, S;Palestini, S;Palka, M;Pallin, D;Panagoulas, I;Pandini, CE;Vazquez, JGP;Pani, P;Panizzo, G;Paolozzi, L;Papadopoulos, TD;Papageorgiou, K;Paramonov, A;Hernandez, DP;Saenz, SRP;Parida, B;Parker, AJ;Parker, KA;Parker, MA;Parodi, F;Parsons, JA;Parzefall, U;Pascuzzi, VR;Pasner, JMP;Pasqualucci, E;Passaggio, S;Pastore, F;Pasuwan, P;Patariaia, S;Pater, JR;Pathak, A;Pauly, T;Pearson, B;Pedersen, M;Diaz, LP;Pedro, R;Peleganchuk, SV;Penc, O;Peng, C;Peng, H;Peralva, BS;Perego, MM;Peixoto, APP;Perepelitsa, DV;Peri, F;Perini, L;Pernegger, H;Perrella, S;Peshekhonov, VD;Peters, K;Peters, RFY;Petersen, BA;Petersen, TC;Petit, E;Petridis, A;Petridou, C;Petroff, P;Petrov, M;Petrucci, F;Pettee, M;Pettersson, NE;Peyaud, A;Pezoa, R;Pham, T;Phillips, FH;Phillips, PW;Piacquadio, G;Pianori, E;Picazio, A;Pickering, MA;Pickles, RH;Piegaia, R;Pilcher, JE;Pilkington, AD;Pinamonti, M;Pinfold, JL;Pitt, M;Pleier, M-A;Pleskot, V;Plotnikova, E;Pluth, D;Podberezko, P;Poettgen, R;Poggi, R;Poggioli, L;Pogrebnyak, I;Pohl, D;Pokharel, I;Polesello, G;Poley, A;Policicchio, A;Polifka, R;Polini, A;Pollard, CS;Polychronakos, V;Ponomarenko, D;Pontecorvo, L;Popeneciu, GA;Quintero, DMP;Pospisil, S;Potamianos, K;Potrap, IN;Potter, CJ;Potti, H;Poulsen, T;Poveda, J;Powell, TD;Astigarraga, MEP;Pralavorio, P;Prell, S;Price, D;Primavera, M;Prince, S;Proklova, N;Prokofiev, K;Prokoshin, F;Protopopescu, S;Proudfoot, J;Przybycien, M;Puri, A;Puzo, P;Qian, J;Qin, Y;Quadt, A;Queitsch-Maitland, M;Qureshi, A;Rados, P;Ragusa, F;Rahal, G;Raine, JA;Rajagopalan, S;Morales, AR;Rashid, T;Raspopov, S;Ratti, MG;Rauch, DM;Rauscher, F;Rave, S;Ravina, B;Ravinovich, I;Rawling, JH;Raymond, M;Read, AL;Radioff, NP;Reale, M;Rebuzzi, DM;Redelbach, A;Redlinger, G;Reece, R;Reed, RG;Reeves, K;Rehnisch, L;Reichert, J;Reiss, A;Rembser, C;Ren, H;Rescigno, M;Resconi, S;Resseguie, ED;Rettie, S;Reynolds, E;Rezanova, OL;Reznicek, P;Ricci, E;Richter, R;Richter, S;Richter-Was, E;Ricken, O;Ridel, M;Rieck, P;Riegel, CJ;Rifki, O;Rijssenbeek, M;Rimoldi,

A;Rimoldi, M;Rinaldi, L;Ripellino, G;Ristic, B;Ritsch, E;Riu, I;Vergara, JCR;Rizatdinova, F;Rizvi, E;Rizzi, C;Roberts, RT;Robertson, SH;Robinson, D;Robinson, JEM;Robson, A;Rocco, E;Roda, C;Rodina, Y;Rodriguez Bosca, S;Perez, AR;Rodriguez Rodriguez, D;Vera, AMR;Roe, S;Rogan, CS;Rohne, O;Roehrig, R;Roland, CPA;Roloff, J;Romaniouk, A;Romano, M;Rompotis, N;Ronzani, M;Roos, L;Rosati, S;Rosbach, K;Rose, P;Rosien, N-A;Rossi, E;Rossi, E;Rossi, LP;Rossini, L;Rosten, JHN;Rosten, R;Rotaru, M;Rothberg, J;Rousseau, D;Roy, D;Rozanov, A;Rozen, Y;Ruan, X;Rubbo, F;Ruehr, F;Ruiz-Martinez, A;Rurikova, Z;Rusakovich, NA;Russell, HL;Rutherford, JP;Ruettinger, EM;Ryabov, YF;Rybar, M;Rybkin, G;Ryu, S;Ryzhov, A;Rzehorz, GF;Sabatini, P;Sabato, G;Sacerdoti, S;Sadrozinski, HF-W;Sadykov, R;Tehrani, FS;Saha, P;Sahinsoy, M;Sahu, A;Saimpert, M;Saito, M;Saito, T;Sakamoto, H;Sakharov, A;Salamani, D;Salamanna, G;Loyola, JES;Salek, D;De Bruin, PHS;Salihagic, D;Salnikov, A;Salt, J;Salvatore, D;Salvatore, F;Salvucci, A;Salzburger, A;Samarati, J;Sammel, D;Sampsonidis, D;Sampsonidou, D;Sanchez, J;Pineda, AS;Sandaker, H;Sander, CO;Sandhoff, M;Sandoval, C;Sankey, DPC;Sannino, M;Sano, Y;Sansoni, A;Santoni, C;Santos, H;Castillo, IS;Santra, A;Sapronov, A;Saraiva, JG;Sasaki, O;Sato, K;Sauvan, E;Savard, P;Savic, N;Sawada, R;Sawyer, C;Sawyer, L;Sbarra, C;Sbrizzi, A;Scanlon, T;Schaarschmidt, J;Schacht, P;Schachtner, BM;Schaefer, D;Schaefer, L;Schaeffer, J;Schaepe, S;Schaefer, U;Schaffer, AC;Schaile, D;Schamberger, RD;Scharmberg, N;Schegelsky, VA;Scheirich, D;Schenck, F;Schernau, M;Schiavi, C;Schier, S;Schildgen, LK;Schillaci, ZM;Schioppa, EJ;Schioppa, M;Schleicher, KE;Schlenker, S;Schmidt-Sommerfeld, KR;Schmieden, K;Schmitt, C;Schmitt, S;Schmitz, S;Schmoeckel, JC;Schnoor, U;Schoeffel, L;Schoening, A;Schopf, E;Schott, M;Schouwenberg, JFP;Schovancova, J;Schramm, S;Schulte, A;Schultz-Coulon, H-C;Schumacher, M;Schumm, BA;Schune, P;Schwartzman, A;Schwarz, TA;Schweiger, H;Schwemling, P;Schwienhorst, R;Sciandra, A;Sciolla, G;Scornajenghi, M;Scuri, F;Scutti, F;Scyboz, LM;Searcy, J;Sebastiani, CD;Seema, P;Seidel, SC;Seiden, A;Seiss, T;Seixas, JM;Sekhniaidze, G;Sekhon, K;Sekula, SJ;Semprini-Cesari, N;Sen, S;Senkin, S;Serfon, C;Serin, L;Serkin, L;Sessa, M;Severini, H;Sforza, F;Sfyrla, A;Shabalina, E;Shahinian, JD;Shaikh, NW;Shan, LY;Shang, R;Shank, JT;Shapiro, M;Sharma, AS;Sharma, A;Shatalov, PB;Shaw, K;Shaw, SM;Shcherbakova, A;Shen, Y;Sherafati, N;Sherman, AD;Sherwood, P;Shi, L;Shimizu, S;Shimmin, CO;Shimajima, M;Shipsey, IPJ;Shirabe, S;Shiyakova, M;Shlomi, J;Shmeleva, A;Saadi, DS;Shochet, MJ;Shojaii, S;Shope, DR;Shrestha, S;Shulga, E;Sicho, P;Sickles, AM;Sidebo, PE;Haddad, ES;Sidiropoulou, O;Sidoti, A;Siegert, F;Sijacki, D;Silva, J;Silva, M;Oliveira, MVS;Silverstein, SB;Simic, L;Simion, S;Simioni, E;Simon, M;Simoniello, R;Sinervo, P;Sinev, NB;Sioli, M;Siragusa, G;Siral, I;Sivoklov, SY;Sjoelin, J;Skubic, P;Slater, M;Slavicek, T;Slawinska, M;Sliwa, K;Slovak, R;Smakhtin, V;Smart, BH;Smiesko, J;Smirnov, N;Smirnov, SY;Smirnov, Y;Smirnova, LN;Smirnova, O;Smith, JW;Smith, MNK;Smizanska, M;Smolek, K;Smykiewicz, A;Snesarev, AA;Snyder, IM;Snyder, S;Sobie, R;Soffa, AM;Soffer, A;Sogaard, A;Soh, DA;Sokhrannyi, G;Sanchez, CAS;Solar, M;Soldatov, EY;Soldevila, U;Solodkov, AA;Soloshenko, A;Solovyanov, OV;Solovyev, V;Sommer, P;Son, H;Song, W;Song, WY;Sopczak, A;Sopkova, F;Sosa, D;Sotiropoulou, CL;Sottocornola, S;Soualah, R;Soukharev, AM;South, D;Sowden, BC;Spagnolo, S;Spalla, M;Spangenberg, M;Spano, F;Sperlich, D;Spettel, F;Spieker, TM;Spighi, R;Spigo, G;Spiller, LA;Spiteri, DP;Spousta, M;Stabile, A;Stamen, R;Stamm, S;Stanecka, E;Stanek, RW;Stanescu, C;Stanislaus, B;Stanitzki, MM;Stapf, B;Stapnes, S;Starchenko, EA;Stark, GH;Stark, J;Stark, SH;Staroba, P;Starovoitov, P;Staerz, S;Staszewski, R;Stegler, M;Steinberg, P;Stelzer, B;Stelzer, HJ;Stelzer-Chilton, O;Stenzel, H;Stevenson, TJ;Stewart, GA;Stockton, MC;Stoica, G;Stolte, P;Stonjek, S;Straessner, A;Strandberg, J;Strandberg, S;Strauss, M;Strizenec, P;Stroehmer, R;Strom, DM;Stroynowski, R;Strubig, A;Stucci, SA;Stugu, B;Stupak, J;Styles, NA;Su, D;Su, J;Suchek, S;Sugaya, Y;Suk, M;Sulin, VV;Sultan,

DMS;Sultansoy, S;Sumida, T;Sun, S;Sun, X;Suruliz, K;Suster, CJE;Sutton, MR;Suzuki, S;Svatos, M;Swiatlowski, M;Swift, SP;Sydorenko, A;Sykora, I;Sykora, T;Ta, D;Tackmann, K;Taenzer, J;Taffard, A;Tafirout, R;Tahirovic, E;Taiblum, N;Takai, H;Takashima, R;Takasugi, EH;Takeda, K;Takeshita, T;Takubo, Y;Talby, M;Talyshv, AA;Tanaka, J;Tanaka, M;Tanaka, R;Tannenwald, BB;Araya, ST;Tapprogge, S;Mohamed, ATA;Tarem, S;Tarna, G;Tartarelli, GF;Tas, P;Tasevsky, M;Tashiro, T;Tassi, E;Delgado, AT;Tayalati, Y;Taylor, AC;Taylor, AJ;Taylor, GN;Taylor, PTE;Taylor, W;Tee, AS;Teixeira-Dias, P;Ten Kate, H;Teng, PK;Teoh, JJ;Tepel, F;Terada, S;Terashi, K;Terron, J;Terzo, S;Testa, M;Teuscher, RJ;Thais, SJ;Thevenaux-Pelzer, T;Thiele, F;Thomas, DW;Thomas, JP;Thompson, AS;Thompson, PD;Thomsen, LA;Thomson, E;Tian, Y;Torres, RET;Tikhomirov, VO;Tikhonov, YA;Timoshenko, S;Tipton, P;Tisserant, S;Todome, K;Todorova-Nova, S;Todt, S;Tojo, J;Tokar, S;Tokushuku, K;Tolley, E;Tomiwa, KG;Tomoto, M;Tompkins, L;Toms, K;Tong, B;Tornambe, P;Torrence, E;Torres, H;Pastor, ET;Tosciri, C;Toth, J;Touchard, F;Tovey, DR;Treado, CJ;Trefzger, T;Tresoldi, F;Tricoli, A;Trigger, IM;Trincas-Duvoid, S;Tripijana, MF;Trischuk, W;Trocme, B;Trofymov, A;Troncon, C;Trovatelli, M;Trovato, F;Truong, L;Trzebinski, M;Trzupek, A;Tsai, F;Tseng, JC-L;Tsiarashka, PV;Tsirigotis, A;Tsirintanis, N;Tsiskaridze, V;Tskhadadze, EG;Tsukerman, II;Tsulaia, V;Tsuno, S;Tsybychev, D;Tu, Y;Tudorache, A;Tudorache, V;Tulbure, TT;Tuna, AN;Turchikhin, S;Turgeman, D;Cakir, IT;Turra, R;Tuts, PM;Tzovara, E;Ucchielli, G;Ueda, I;Ughetto, M;Ukegawa, F;Unal, G;Undrus, A;Unel, G;Ungaro, FC;Unno, Y;Uno, K;Urban, J;Urquijo, P;Urrejola, P;Usai, G;Usui, J;Vacavant, L;Vacek, V;Vachon, B;Vadla, KOH;Vaidya, A;Valderanis, C;Santurio, EV;Valente, M;Valentinetti, S;Valero, A;Valery, L;Vallance, RA;Vallier, A;Valls Ferrer, JA;Van Daalen, TR;Van der Graaf, H;Van Gemmeren, P;Van Nieuwkoop, J;Van Vulpen, I;Vanadia, M;Vandelli, W;Vaniachine, A;Vankov, P;Vari, R;Varnes, EW;Varni, C;Varol, T;Varouchas, D;Varvell, KE;Vasquez, GA;Vasquez, JG;Vazeille, F;Vazquez Furelos, D;Vazquez Schroeder, T;Veatch, J;Vecchio, V;Veloce, LM;Velooso, F;Veneziano, S;Ventura, A;Venturi, M;Venturi, N;Vercesi, V;Verducci, M;Infante, CMV;Vergis, C;Verkerke, W;Vermeulen, AT;Vermeulen, JC;Vetterli, MC;Maira, NV;Pinto, MVB;Vichou, I;Vickey, T;Boeriu, OEV;Viehhauser, GHA;Viel, S;Vigani, L;Villa, M;Perez, MV;Vilucchi, E;Vincter, MG;Vinogradov, VB;Vishwakarma, A;Vittori, C;Vivarelli, I;Vlachos, S;Vogel, M;Vokac, P;Volpi, G;von Buddenbrock, SE;Von Toerne, E;Vorobel, V;Vorobev, K;Vos, M;Vossebeld, JH;Vranjes, N;Milosavljevic, MV;Vrba, V;Vreeswijk, M;Sfiligoj, T;Vuillermet, R;Vukotic, I;Zenis, T;Zivkovic, L;Wagner, P;Wagner, W;Wagner-Kuhr, J;Wahlberg, H;Wahrmund, S;Wakamiya, K;Walbrecht, VM;Walder, J;Walker, R;Walker, SD;Walkowiak, W;Wallangen, V;Wang, AM;Wang, C;Wang, F;Wang, H;Wang, H;Wang, J;Wang, J;Wang, P;Wang, Q;Wang, R-J;Wang, R;Wang, R;Wang, SM;Wang, WT;Wang, W;Wang, WX;Wang, Y;Wang, Z;Wanotayaroj, C;Warburton, A;Ward, CP;Wardrope, DR;Washbrook, A;Watkins, PM;Watson, AT;Watson, MF;Watts, G;Watts, S;Waugh, BM;Webb, AF;Webb, S;Weber, C;Weber, MS;Weber, SA;Weber, SM;Weidberg, AR;Weinert, B;Weingarten, J;Weirich, M;Weiser, C;Wells, PS;Wenaus, T;Wengler, T;Wenig, S;Wermes, N;Werner, MD;Werner, P;Wessels, M;Weston, TD;Whalen, K;Whallon, NL;Wharton, AM;White, AS;White, A;White, MJ;White, R;Whiteson, D;Whitmore, BW;Wickens, FJ;Wiedenmann, W;Wielers, M;Wiglesworth, C;Wiik-Fuchs, LAM;Wildauer, A;Wilk, F;Wilkens, HG;Wilkins, LJ;Williams, HH;Williams, S;Willis, C;Willoccq, S;Wilson, JA;Wingerter-Seez, I;Winkels, E;Winklmeier, F;Winston, OJ;Winter, BT;Wittgen, M;Wobisch, M;Wolf, A;Wolf, TMH;Wolff, R;Wolter, MW;Wolters, H;Wong, VWS;Woods, NL;Worm, SD;Wosiek, BK;Wozniak, KW;Wraight, K;Wu, M;Wu, SL;Wu, X;Wu, Y;Wyatt, TR;Wynne, BM;Xella, S;Xi, Z;Xia, L;Xu, D;Xu, H;Xu, L;Xu, T;Xu, W;Yabsley, B;Yacoob, S;Yajima, K;Yallup, DP;Yamaguchi, D;Yamaguchi, Y;Yamamoto, A;Yamanaka, T;Yamane, F;Yamatani, M;Yamazaki, T;Yamazaki, Y;Yan, Z;Yang, HJ;Yang, HT;Yang, S;Yang, Y;Yang, Z;Yao, W-M;Yap, YC;Yasu, Y;Yatsenko, E;Ye, J;Ye, S;Yeletsikh, I;Yigitbasi, E;Yildirim, E;Yorita, K;Yoshihara,

K;Young, CJS;Young, C;Yu, J;Yu, J;Yue, X;Yuen, SPY;Zabinski, B;Zacharis, G;Zaffaroni, E;Zaidan, R;Zaitsev, AM;Zakareishvili, T;Zakharchuk, N;Zalieckas, J;Zambito, S;Zanzi, D;Zaripovas, DR;Zeissner, SV;Zeitnitz, C;Zemaityte, G;Zeng, JC;Zeng, Q;Zenin, O;Zerwas, D;Zgubic, M;Zhang, DF;Zhang, D;Zhang, F;Zhang, G;Zhang, H;Zhang, J;Zhang, L;Zhang, L;Zhang, M;Zhang, P;Zhang, R;Zhang, R;Zhang, X;Zhang, Y;Zhang, Z;Zhao, P;Zhao, X;Zhao, Y;Zhao, Z;Zhemchugov, A;Zhou, B;Zhou, C;Zhou, L;Zhou, MS;Zhou, M;Zhou, N;Zhou, Y;Zhu, CG;Zhu, HL;Zhu, H;Zhu, J;Zhu, Y;Zhuang, X;Zhukov, K;Zhulanov, V;Zibell, A;Zieminska, D;Zimine, NI;Zimmermann, S;Zinonos, Z;Zinser, M;Ziolkowski, M;Zobernig, G;Zoccoli, A;Zoch, K;Zorbas, TG;Zou, R;Nedden, MZ;Zwalinski, L

Title:

Measurements of top-quark pair differential and double-differential cross-sections in the $l+\text{jets}$ channel with pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector (79, 1028, 2019)

Date:

2020-11-01

Citation:

Aaboud, M., Aad, G., Abbott, B., Abdinov, O., Abeloos, B., Abhayasinghe, D. K., Abidi, S. H., AbouZeid, O. S., Abraham, N. L., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, B. S., Adachi, S., Adamczyk, L., Adelman, J., Adersberger, M., Adiguzel, A., Adye, T., ... Zwalinski, L. (2020). Measurements of top-quark pair differential and double-differential cross-sections in the $l+\text{jets}$ channel with pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector (79, 1028, 2019). EUROPEAN PHYSICAL JOURNAL C, 80 (11), <https://doi.org/10.1140/epjc/s10052-020-08541-3>.

Persistent Link:

<https://hdl.handle.net/11343/274055>

License:

CC BY



Erratum to: Measurements of top-quark pair differential and double-differential cross-sections in the ℓ +jets channel with pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector [Eur. Phys. J. C 79 (2019) 1028]

ATLAS Collaboration*

CERN, 1211 Geneva 23, Switzerland

Received: 8 October 2020 / Accepted: 11 October 2020 / Published online: 26 November 2020
© CERN for the benefit of the ATLAS collaboration 2020

Erratum to: Eur. Phys. J. C (2019) 79:1028

<https://doi.org/10.1140/epjc/s10052-019-7525-6>

Corrections for five figures and six tables are noted for the paper, which do not affect the conclusions reported:

- in the double-differential cross-sections at particle level in the resolved topology as a function of $|\Delta\phi(t\bar{t})|$, $|y^{t,\text{had}}|$ and $|y^{t\bar{t}}|$ as a function of the number of additional jets, in certain cases the values of $|y^{t,\text{had}}|$ and $|y^{t\bar{t}}|$ were shifted by 0.5 and the values of $|\Delta\phi(t\bar{t})|$ were shifted by $0.14 \cdot i$, where i is the number of additional jets. This issue affects Fig. 34 and Tables 11 and 12;
- the differential cross-section at particle level in the boosted topology as a function of the number of small- R jets clustered inside a top-quark candidate was actually evaluated as a function of the number of small- R jets clustered inside the large- R jet with higher transverse momentum. As a consequence, the definition of the multiplicity of additional small- R jets referred to the large- R jet with higher transfer momentum rather than to the top-quark candidate. This issue affects the single-differential cross-section as a function of N^{subjets} and

$N^{\text{extrajets}}$ and the double-differential cross-sections as a function of $p_{\text{T}}^{t,\text{had}}$, $m^{t\bar{t}}$ and $p_{\text{T}}^{t\bar{t}}$ in bins of $N^{\text{extrajets}}$. This issue affects Figs. 42, 50, 51 and 52 and Tables 13, 14, 15 and 16.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.
Funded by SCOAP³.

The original article can be found online at <https://doi.org/10.1140/epjc/s10052-019-7525-6>.

* e-mail: atlas.publications@cern.ch

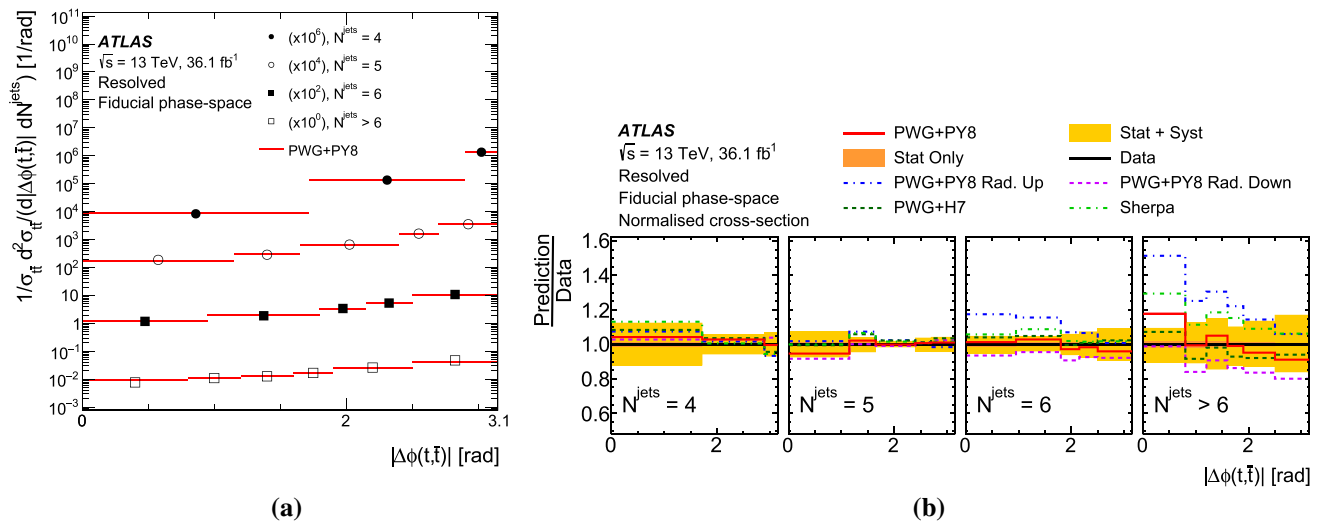


Fig. 34 **a** Particle-level normalised differential cross-section as a function of $|\Delta\phi(t, \bar{t})|$ in bins of the jet multiplicity in the resolved topology compared with the prediction obtained with the POWHEG+PYTHIA8 MC

generator. Data points are placed at the centre of each bin. **b** The ratio of the measured cross-section to different Monte Carlo predictions. The bands represent the statistical and total uncertainty in the data

Table 11 Comparison of the measured particle-level normalised double-differential cross-sections in the resolved topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution minus one

Observable	PWG + Py8		PWG + Py8 Rad. Up		PWG + Py8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$H_T^{\text{tr}} \text{ vs } N^{\text{extrajets}}$	9.7/19	0.96	57.9/19	< 0.01	19.4/19	0.43	48.7/19	< 0.01	27.4/19	0.10
$ p_{\text{out}}^{f,\text{had}} \text{ vs } N^{\text{extrajets}}$	10.8/9	0.29	89.2/9	< 0.01	31.9/9	< 0.01	32.6/9	< 0.01	19.2/9	0.02
$\chi^{\text{tr}} \text{ vs } N^{\text{extrajets}}$	37.6/19	< 0.01	31.6/19	0.03	88.9/19	< 0.01	84.8/19	< 0.01	23.7/19	0.21
$ \Delta\phi(t, \bar{t}) \text{ vs } N^{\text{extrajets}}$	41.4/18	< 0.01	214.0/18	< 0.01	41.3/18	< 0.01	65.5/18	< 0.01	54.0/18	< 0.01
$ y^{f,\text{had}} \text{ vs } N^{\text{extrajets}}$	16.1/12	0.19	14.9/12	0.25	39.4/12	< 0.01	67.5/12	< 0.01	9.8/12	0.63
$ y^{f,\text{had}} \text{ vs } p_T^{f,\text{had}}$	14.9/12	0.25	11.9/12	0.45	18.1/12	0.11	8.4/12	0.75	9.4/12	0.67
$p_T^{f,\text{had}} \text{ vs } p_{\text{out}}^{f,\text{had}} $	10.5/12	0.57	74.5/12	< 0.01	25.3/12	0.01	13.4/12	0.34	22.4/12	0.03
$p_T^{f,\text{had}} \text{ vs } N^{\text{extrajets}}$	14.2/16	0.58	45.7/16	< 0.01	37.3/16	< 0.01	67.5/16	< 0.01	13.9/16	0.60
$ y^{\text{tr}} \text{ vs } N^{\text{extrajets}}$	8.2/12	0.77	11.8/12	0.47	28.0/12	< 0.01	63.0/12	< 0.01	12.6/12	0.40
$ y^{\text{tr}} \text{ vs } m^{\text{tr}}$	18.0/14	0.21	12.0/14	0.60	23.1/14	0.06	13.2/14	0.51	14.8/14	0.40
$ y^{\text{tr}} \text{ vs } p_T^{\text{tr}}$	28.5/12	< 0.01	149.0/12	< 0.01	23.2/12	0.03	31.8/12	< 0.01	70.7/12	< 0.01
$m^{\text{tr}} \text{ vs } N^{\text{extrajets}}$	29.1/16	0.02	25.5/16	0.06	49.6/16	< 0.01	24.6/16	0.08	11.5/16	0.78
$m^{\text{tr}} \text{ vs } p_T^{f,\text{had}}$	58.9/31	< 0.01	51.4/31	0.01	92.3/31	< 0.01	35.6/31	0.26	44.8/31	0.05
$m^{\text{tr}} \text{ vs } p_T^{\text{tr}}$	43.6/21	< 0.01	260.0/21	< 0.01	47.0/21	< 0.01	44.7/21	< 0.01	149.0/21	< 0.01
$p_T^{\text{tr}} \text{ vs } N^{\text{extrajets}}$	69.1/19	< 0.01	283.0/19	< 0.01	58.5/19	< 0.01	82.8/19	< 0.01	102.0/19	< 0.01
$p_T^{\text{tr}} \text{ vs } p_T^{f,\text{had}}$	39.2/19	< 0.01	282.0/19	< 0.01	51.5/19	< 0.01	55.8/19	< 0.01	137.0/19	< 0.01

Table 12 Comparison of the measured particle-level absolute double-differential cross-sections in the resolved topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution

Observable	PWG + Py8		PWG + Py8 Rad. Up		PWG + Py8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$H_T^{\tau\bar{\tau}}$ vs $N_{\text{extrajets}}$	13.8/20	0.84	72.9/20	< 0.01	31.3/20	0.05	56.6/20	< 0.01	40.5/20	< 0.01
$ p_{\text{out}}^{f,\text{had}} $ vs $N_{\text{extrajets}}$	16.3/10	0.09	165.0/10	< 0.01	15.7/10	0.11	35.6/10	< 0.01	50.9/10	< 0.01
$\chi^{\tau\bar{\tau}}$ vs $N_{\text{extrajets}}$	44.4/20	< 0.01	60.3/20	< 0.01	88.3/20	< 0.01	62.2/20	< 0.01	24.6/20	0.21
$ \Delta\phi(t, \bar{t}) $ vs $N_{\text{extrajets}}$	47.5/19	< 0.01	221.0/19	< 0.01	48.0/19	< 0.01	57.8/19	< 0.01	62.7/19	< 0.01
$ y^{f,\text{had}} $ vs $N_{\text{extrajets}}$	15.8/13	0.26	37.3/13	< 0.01	33.3/13	< 0.01	52.1/13	< 0.01	15.2/13	0.29
$ y^{f,\text{had}} $ vs $p_T^{f,\text{had}}$	13.3/13	0.42	12.9/13	0.45	15.6/13	0.27	8.7/13	0.80	9.8/13	0.71
$p_T^{f,\text{had}}$ vs $ p_{\text{out}}^{f,\text{had}} $	8.6/13	0.80	79.6/13	< 0.01	28.8/13	< 0.01	9.7/13	0.72	16.0/13	0.25
$p_T^{f,\text{had}}$ vs $N_{\text{extrajets}}$	19.3/17	0.31	59.5/17	< 0.01	43.3/17	< 0.01	65.3/17	< 0.01	24.7/17	0.10
$ y^{\tau\bar{\tau}} $ vs $N_{\text{extrajets}}$	7.4/13	0.88	19.1/13	0.12	21.1/13	0.07	47.9/13	< 0.01	17.8/13	0.16
$ y^{\tau\bar{\tau}} $ vs $m^{\tau\bar{\tau}}$	22.3/15	0.10	15.0/15	0.45	29.8/15	0.01	15.8/15	0.40	19.1/15	0.21
$ y^{\tau\bar{\tau}} $ vs $p_T^{\tau\bar{\tau}}$	32.7/13	< 0.01	143.0/13	< 0.01	21.2/13	0.07	36.8/13	< 0.01	81.4/13	< 0.01
$m^{\tau\bar{\tau}}$ vs $N_{\text{extrajets}}$	28.0/17	0.04	29.0/17	0.03	49.2/17	< 0.01	36.3/17	< 0.01	14.0/17	0.67
$m^{\tau\bar{\tau}}$ vs $p_T^{f,\text{had}}$	56.2/32	< 0.01	59.9/32	< 0.01	79.9/32	< 0.01	31.9/32	0.47	48.5/32	0.03
$m^{\tau\bar{\tau}}$ vs $p_T^{\tau\bar{\tau}}$	49.0/22	< 0.01	310.0/22	< 0.01	53.3/22	< 0.01	55.1/22	< 0.01	175.0/22	< 0.01
$p_T^{\tau\bar{\tau}}$ vs $N_{\text{extrajets}}$	93.2/20	< 0.01	412.0/20	< 0.01	51.9/20	< 0.01	91.8/20	< 0.01	163.0/20	< 0.01
$p_T^{\tau\bar{\tau}}$ vs $p_T^{f,\text{had}}$	38.6/20	< 0.01	294.0/20	< 0.01	66.5/20	< 0.01	46.1/20	< 0.01	128.0/20	< 0.01

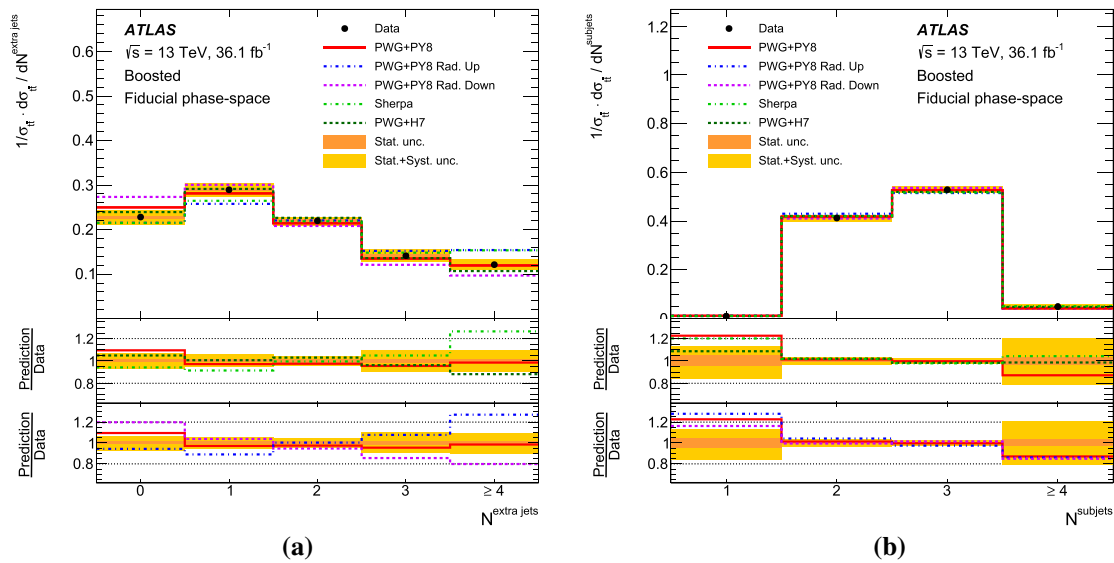


Fig. 42 Particle-level normalised differential cross-sections as a function of **a** the number of additional jets and **b** the number of small- R jets composing the hadronically decaying top quark in the boosted topology, compared with different Monte Carlo predictions. The bands represent

the statistical and total uncertainty in the data. Data points are placed at the centre of each bin. The lower panel shows the ratios of the simulations to data

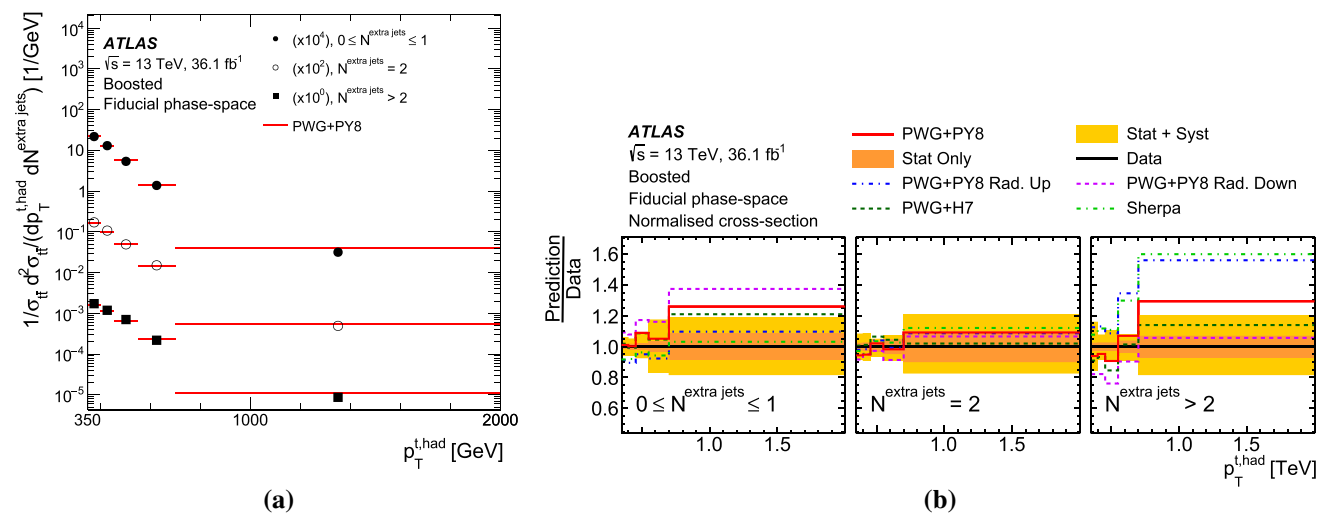


Fig. 50 **a** Particle-level normalised differential cross-section as a function of the p_T of the hadronically decaying top quark in bins of the number of additional jets in the boosted topology compared with the prediction obtained with the POWHEG+ PYTHIA8 MC generator. Data

points are placed at the centre of each bin. **b** The ratio of the measured cross-section to different Monte Carlo predictions. The bands represent the statistical and total uncertainty in the data

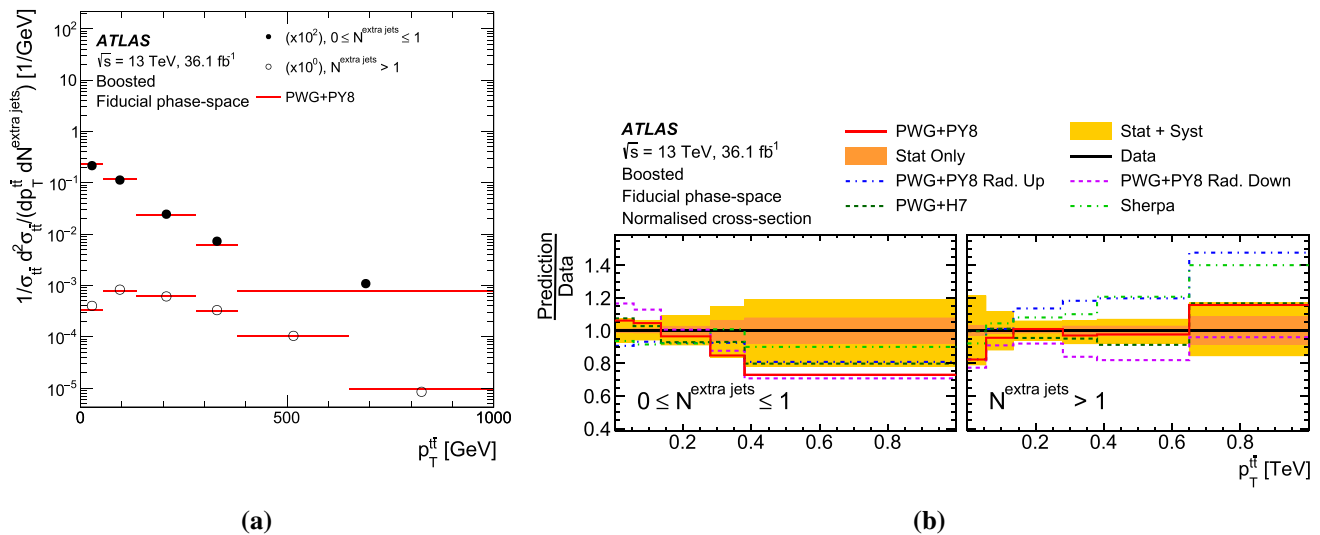


Fig. 51 **a** Particle-level normalised differential cross-section as a function of the p_T of the $t\bar{t}$ system in bins of the number of additional jets in the boosted topology compared with the prediction obtained with the POWHEG+ PYTHIA8 MC generator. Data points are placed at the cen-

tre of each bin. **b** The ratio of the measured cross-section to different Monte Carlo predictions. The bands represent the statistical and total uncertainty in the data

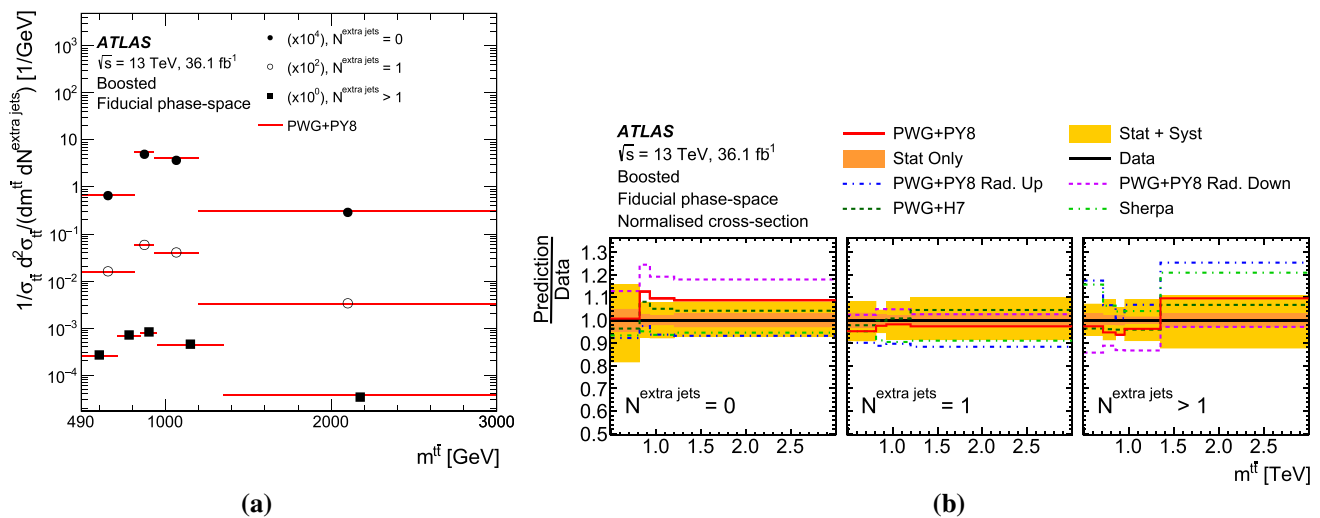


Fig. 52 **a** Particle-level normalised differential cross-section as a function of the mass of the $t\bar{t}$ system in bins of the number of additional jets in the boosted topology compared with the prediction obtained with the

POWHEG+ PYTHIA8 MC generator. Data points are placed at the centre of each bin. **b** The ratio of the measured cross-section to different Monte Carlo predictions

Table 13 Comparison of the measured particle-level normalised single-differential cross-sections in the boosted topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution minus one

Observable	PWG + Py8		PWG + Py8 Rad. Up		PWG + Py8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$p_T^{t,1}$	6.2/7	0.51	10.3/7	0.17	2.8/7	0.90	2.4/7	0.93	11.1/7	0.14
$p_T^{t,2}$	4.0/6	0.68	3.9/6	0.69	4.1/6	0.66	3.2/6	0.78	4.4/6	0.62
$H_T^{t\bar{t}}$	9.0/9	0.44	7.1/9	0.62	24.1/9	< 0.01	10.4/9	0.32	7.8/9	0.56
$ p_{\text{out}}^{t,\text{lep}} $	7.1/6	0.31	17.2/6	< 0.01	43.3/6	< 0.01	25.4/6	< 0.01	2.9/6	0.82
$\chi^{t\bar{t}}$	3.5/6	0.74	1.0/6	0.98	18.4/6	< 0.01	3.2/6	0.79	8.9/6	0.18
$N^{\text{extrajets}}$	6.8/4	0.15	16.7/4	< 0.01	16.5/4	< 0.01	3.4/4	0.49	8.6/4	0.07
$p_T^{t,\text{had}}$	6.2/7	0.52	11.0/7	0.14	3.2/7	0.86	3.5/7	0.83	10.6/7	0.16
N^{subjects}	2.6/3	0.45	4.1/3	0.25	1.9/3	0.60	0.7/3	0.88	3.6/3	0.31
$ y^{t,\text{had}} $	0.6/3	0.90	0.5/3	0.93	1.5/3	0.68	0.6/3	0.90	1.2/3	0.75
$ y^{t\bar{t}} $	3.2/3	0.36	1.9/3	0.60	4.5/3	0.21	5.2/3	0.16	4.2/3	0.24
$m^{t\bar{t}}$	7.5/9	0.59	11.8/9	0.23	16.2/9	0.06	8.1/9	0.52	8.3/9	0.50
$p_T^{t\bar{t}}$	3.5/5	0.63	25.6/5	< 0.01	35.7/5	< 0.01	9.8/5	0.08	19.7/5	< 0.01

Table 14 Comparison of the measured particle-level absolute single-differential cross-sections in the boosted topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution

Observable	PWG + Py8		PWG + Py8 Rad. Up		PWG + Py8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$p_T^{t,1}$	7.8/8	0.46	14.1/8	0.08	3.9/8	0.86	2.8/8	0.95	12.9/8	0.11
$p_T^{t,2}$	5.3/7	0.62	6.6/7	0.47	5.7/7	0.58	5.6/7	0.59	4.8/7	0.68
$H_T^{t\bar{t}}$	10.9/10	0.37	10.5/10	0.40	15.5/10	0.12	7.0/10	0.72	11.4/10	0.33
$ p_{\text{out}}^{t,\text{lep}} $	24.2/7	< 0.01	21.7/7	< 0.01	72.0/7	< 0.01	31.9/7	< 0.01	9.9/7	0.19
$\chi^{t\bar{t}}$	12.9/7	0.07	9.2/7	0.24	32.0/7	< 0.01	4.5/7	0.72	17.2/7	0.02
$N^{\text{extrajets}}$	34.6/5	< 0.01	40.4/5	< 0.01	51.7/5	< 0.01	5.7/5	0.34	34.6/5	< 0.01
$p_T^{t,\text{had}}$	9.2/8	0.33	16.0/8	0.04	5.9/8	0.66	4.5/8	0.81	12.0/8	0.15
N^{subjects}	12.5/4	0.01	15.2/4	< 0.01	12.0/4	0.02	0.6/4	0.97	6.0/4	0.20
$ y^{t,\text{had}} $	4.0/4	0.41	5.8/4	0.21	3.9/4	0.42	2.3/4	0.68	10.6/4	0.03
$ y^{t\bar{t}} $	8.8/4	0.07	10.3/4	0.04	8.1/4	0.09	6.7/4	0.15	10.5/4	0.03
$m^{t\bar{t}}$	16.5/10	0.09	28.5/10	< 0.01	24.3/10	< 0.01	11.2/10	0.34	25.5/10	< 0.01
$p_T^{t\bar{t}}$	21.0/6	< 0.01	59.3/6	< 0.01	107.0/6	< 0.01	27.8/6	< 0.01	38.4/6	< 0.01

Table 15 Comparison of the measured particle-level normalised double-differential cross-sections in the boosted topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution minus one

Observable	PWG + PY8		PWG + PY8 Rad. Up		PWG + PY8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$m_{T\bar{t}}^{\bar{t}} \text{ vs } N_{\text{extrajets}}$	16.9/12	0.15	34.1/12	< 0.01	31.4/12	< 0.01	6.3/12	0.90	21.0/12	0.05
$p_{T\bar{t}}^{\bar{t}} \text{ vs } N_{\text{extrajets}}$	14.8/10	0.14	52.2/10	< 0.01	48.3/10	< 0.01	14.1/10	0.17	32.2/10	< 0.01
$m_{T\bar{t}}^{\bar{t}} \text{ vs } H_{T\bar{t}}^{\bar{t}}$	7.3/8	0.51	16.5/8	0.04	15.7/8	0.05	7.1/8	0.53	20.8/8	< 0.01
$m_{T\bar{t}}^{\bar{t}} \text{ vs } y_{T\bar{t}}^{\bar{t}} $	4.8/13	0.98	11.5/13	0.57	15.9/13	0.26	5.8/13	0.95	16.4/13	0.23
$m_{T\bar{t}}^{\bar{t}} \text{ vs } p_{T\bar{t}}^{\bar{t}}$	7.8/12	0.80	34.6/12	< 0.01	40.6/12	< 0.01	18.6/12	0.10	18.0/12	0.12
$p_{T\bar{t}}^{f,\text{had}} \text{ vs } y^f $	8.6/9	0.47	12.7/9	0.17	6.5/9	0.69	5.7/9	0.77	12.5/9	0.18
$p_{T\bar{t}}^{f,\text{had}} \text{ vs } y_{T\bar{t}}^{\bar{t}} $	10.0/9	0.35	11.6/9	0.24	8.5/9	0.48	8.9/9	0.45	13.5/9	0.14
$p_{T\bar{t}}^{f,\text{had}} \text{ vs } N_{\text{extrajets}}$	16.9/14	0.26	40.1/14	< 0.01	30.8/14	< 0.01	20.6/14	0.11	31.5/14	< 0.01
$p_{T\bar{t}}^{f,\text{had}} \text{ vs } m_{T\bar{t}}^{\bar{t}}$	6.9/7	0.44	18.7/7	< 0.01	8.9/7	0.26	4.4/7	0.73	25.6/7	< 0.01
$p_{T\bar{t}}^{f,\text{had}} \text{ vs } p_{T\bar{t}}^{\bar{t}}$	16.1/13	0.24	50.4/13	< 0.01	63.2/13	< 0.01	26.0/13	0.02	33.9/13	< 0.01

Table 16 Comparison of the measured particle-level absolute double-differential cross-sections in the boosted topology with the predictions from several MC generators. For each prediction a χ^2 and a p value are calculated using the covariance matrix of the measured spectrum. The NDF is equal to the number of bins in the distribution

Observable	PWG + PY8		PWG + PY8 Rad. Up		PWG + PY8 Rad. Down		PWG + H7		SHERPA 2.2.1	
	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value	χ^2/NDF	p value
$m_{\tilde{t}\tilde{t}}^{\text{tree}} \text{ vs } N_{\text{extrajets}}$	40.5/13	< 0.01	56.0/13	< 0.01	73.8/13	< 0.01	9.6/13	0.73	38.2/13	< 0.01
$p_{\text{T}}^{\tilde{t}\tilde{t}} \text{ vs } N_{\text{extrajets}}$	44.5/11	< 0.01	103.0/11	< 0.01	119.0/11	< 0.01	27.3/11	< 0.01	59.1/11	< 0.01
$m_{\tilde{t}\tilde{t}}^{\text{tree}} \text{ vs } H_{\text{T}}^{\tilde{t}\tilde{t}}$	12.7/9	0.17	17.8/9	0.04	25.3/9	< 0.01	11.8/9	0.22	24.4/9	< 0.01
$m_{\tilde{t}\tilde{t}}^{\text{tree}} \text{ vs } y^{\tilde{t}\tilde{t}} $	18.4/14	0.19	17.3/14	0.24	36.5/14	< 0.01	14.2/14	0.43	22.1/14	0.08
$m_{\tilde{t}\tilde{t}}^{\text{tree}} \text{ vs } p_{\text{T}}^{\tilde{t}\tilde{t}}$	15.5/13	0.28	70.1/13	< 0.01	86.4/13	< 0.01	27.8/13	< 0.01	28.8/13	< 0.01
$p_{\text{T}}^{\tilde{t},\text{had}} \text{ vs } y^{\tilde{t}} $	11.2/10	0.34	15.9/10	0.10	7.3/10	0.70	6.7/10	0.75	15.3/10	0.12
$p_{\text{T}}^{\tilde{t},\text{had}} \text{ vs } y^{\tilde{t}\tilde{t}} $	9.7/10	0.47	10.6/10	0.39	8.1/10	0.62	8.5/10	0.58	13.4/10	0.20
$p_{\text{T}}^{\tilde{t},\text{had}} \text{ vs } N_{\text{extrajets}}$	31.3/15	< 0.01	61.1/15	< 0.01	55.1/15	< 0.01	26.2/15	0.04	52.2/15	< 0.01
$p_{\text{T}}^{\tilde{t},\text{had}} \text{ vs } m_{\tilde{t}\tilde{t}}^{\text{tree}}$	14.8/8	0.06	29.8/8	< 0.01	16.4/8	0.04	4.4/8	0.82	32.6/8	< 0.01
$p_{\text{T}}^{\tilde{t},\text{had}} \text{ vs } p_{\text{T}}^{\tilde{t}\tilde{t}}$	24.6/14	0.04	70.1/14	< 0.01	94.3/14	< 0.01	30.0/14	< 0.01	48.7/14	< 0.01

ATLAS Collaboration

G. Aad¹⁰¹, B. Abbott¹²⁸, D. C. Abbott¹⁰², A. Abed Abud^{70a,70b}, K. Abeling⁵³, D. K. Abhayasinghe⁹³, S. H. Abidi¹⁶⁷, O. S. AbouZeid⁴⁰, N. L. Abraham¹⁵⁶, H. Abramowicz¹⁶¹, H. Abreu¹⁶⁰, Y. Abulaiti⁶, B. S. Acharya^{66a,66b,o}, B. Achkar⁵³, S. Adachi¹⁶³, L. Adam⁹⁹, C. Adam Bourdarios⁵, L. Adamczyk^{83a}, L. Adamek¹⁶⁷, J. Adelman¹²⁰, M. Adersberger¹¹³, A. Adiguzel^{12c}, S. Adorni⁵⁴, T. Adye¹⁴⁴, A. A. Affolder¹⁴⁶, Y. Afik¹⁶⁰, C. Agapopoulou¹³², M. N. Agaras³⁸, A. Aggarwal¹¹⁸, C. Agheorghiesei^{27c}, J. A. Aguilar-Saavedra^{140a,140f,ai}, F. Ahmadov⁷⁹, W. S. Ahmed¹⁰³, X. Ai¹⁸, G. Aielli^{73a,73b}, S. Akatsuka⁸⁵, T. P. A. Åkesson⁹⁶, E. Akilli⁵⁴, A. V. Akimov¹¹⁰, K. Al Khoury¹³², G. L. Alberghi^{23a,23b}, J. Albert¹⁷⁶, M. J. Alconada Verzini¹⁶¹, S. Alderweireldt³⁶, M. Aleksa³⁶, I. N. Aleksandrov⁷⁹, C. Alexa^{27b}, D. Alexandre¹⁹, T. Alexopoulos¹⁰, A. Alfonsi¹¹⁹, F. Alfonsi^{23a,23b}, M. Alhroob¹²⁸, B. Ali¹⁴², G. Alimonti^{68a}, J. Alison³⁷, S. P. Alkire¹⁴⁸, C. Allaire¹³², B. M. M. Allbrooke¹⁵⁶, B. W. Allen¹³¹, P. P. Allport²¹, A. Aloisio^{69a,69b}, A. Alonso⁴⁰, F. Alonso⁸⁸, C. Alpigiani¹⁴⁸, A. A. Alshehri⁵⁷, M. Alvarez Estevez⁹⁸, D. Álvarez Piqueras¹⁷⁴, M. G. Alvigi^{69a,69b}, Y. Amaral Coutinho^{80b}, A. Ambler¹⁰³, L. Ambroz¹³⁵, C. Amelung²⁶, D. Amidei¹⁰⁵, S. P. Amor Dos Santos^{140a}, S. Amoroso⁴⁶, C. S. Amrouche⁵⁴, F. An⁷⁸, C. Anastopoulos¹⁴⁹, N. Andari¹⁴⁵, T. Andeen¹¹, C. F. Anders^{61b}, J. K. Anders²⁰, A. Andreazza^{68a,68b}, V. Andrei^{61a}, C. R. Anelli¹⁷⁶, S. Angelidakis³⁸, A. Angerami³⁹, A. V. Anisenkov^{121a,121b}, A. Annovi^{71a}, C. Antel^{61a}, M. T. Anthony¹⁴⁹, M. Antonelli⁵¹, D. J. A. Antrim¹⁷¹, F. Anulli^{72a}, M. Aoki⁸¹, J. A. Aparisi Pozo¹⁷⁴, L. Aperio Bella^{15a}, G. Arabidze¹⁰⁶, J. P. Araque^{140a}, V. Araujo Ferraz^{80b}, R. Araujo Pereira^{80b}, C. Arcangeletti⁵¹, A. T. H. Arce⁴⁹, F. A. Arduh⁸⁸, J.-F. Arguin¹⁰⁹, S. Argyropoulos⁷⁷, J.-H. Arling⁴⁶, A. J. Armbruster³⁶, A. Armstrong¹⁷¹, O. Arnaez¹⁶⁷, H. Arnold¹¹⁹, Z. P. Arrubarrena Tame¹¹³, A. Artamonov^{123,*}, G. Artoni¹³⁵, S. Artz⁹⁹, S. Asai¹⁶³, N. Asbah⁵⁹, E. M. Asimakopoulou¹⁷², L. Asquith¹⁵⁶, J. Assahsah^{35d}, K. Assamagan²⁹, R. Astalos^{28a}, R. J. Atkin^{33a}, M. Atkinson¹⁷³, N. B. Atlay¹⁹, H. Atmani¹³², K. Augsten¹⁴², G. Avolio³⁶, R. Avramidou^{60a}, M. K. Ayoub^{15a}, A. M. Azoulay^{168b}, G. Azuelos^{109,ax}, H. Bachacou¹⁴⁵, K. Bachas^{67a,67b}, M. Backes¹³⁵, F. Backman^{45a,45b}, P. Bagnaia^{72a,72b}, M. Bahmani⁸⁴, H. Bahrasemani¹⁵², A. J. Bailey¹⁷⁴, V. R. Bailey¹⁷³, J. T. Baines¹⁴⁴, M. Bajic⁴⁰, C. Bakalis¹⁰, O. K. Baker¹⁸³, P. J. Bakker¹¹⁹, D. Bakshi Gupta⁸, S. Balaji¹⁵⁷, E. M. Baldin^{121a,121b}, P. Balek¹⁸⁰, F. Balli¹⁴⁵, W. K. Balunas¹³⁵, J. Balz⁹⁹, E. Banas⁸⁴, A. Bandyopadhyay²⁴, Sw. Banerjee^{181,j}, A. A. E. Bannoura¹⁸², L. Barak¹⁶¹, W. M. Barbe³⁸, E. L. Barberio¹⁰⁴, D. Barberis^{55a,55b}, M. Barbero¹⁰¹, G. Barbour⁹⁴, T. Barillari¹¹⁴, M.-S. Barisits³⁶, J. Barkeloo¹³¹, T. Barklow¹⁵³, R. Barnea¹⁶⁰, S. L. Barnes^{60c}, B. M. Barnett¹⁴⁴, R. M. Barnett¹⁸, Z. Barnovska-Blenessy^{60a}, P. Baron¹³⁰, A. Baroncelli^{60a}, G. Barone²⁹, A. J. Barr¹³⁵, L. Barranco Navarro^{45a,45b}, F. Barreiro⁹⁸, J. Barreiro Guimarães da Costa^{15a}, S. Barsov¹³⁸, R. Bartoldus¹⁵³, G. Bartolini¹⁰¹, A. E. Barton⁸⁹, P. Bartos^{28a}, A. Basalae⁴⁶, A. Bassalat^{132,aq}, M. J. Basso¹⁶⁷, R. L. Bates⁵⁷, S. Batlamous^{35e}, J. R. Batley³², B. Batool¹⁵¹, M. Battaglia¹⁴⁶, M. Bauce^{72a,72b}, F. Bauer¹⁴⁵, K. T. Bauer¹⁷¹, H. S. Bawa^{31,m}, J. B. Beacham⁴⁹, T. Beau¹³⁶, P. H. Beauchemin¹⁷⁰, F. Becherer⁵², P. Bechtel²⁴, H. C. Beck⁵³, H. P. Beck^{20,s}, K. Becker⁵², M. Becker⁹⁹, C. Becot⁴⁶, A. Beddall^{12d}, A. J. Beddall^{12a}, V. A. Bednyakov⁷⁹, M. Bedognetti¹¹⁹, C. P. Bee¹⁵⁵, T. A. Beermann⁷⁶, M. Begalli^{80b}, M. Begel²⁹, A. Behera¹⁵⁵, J. K. Behr⁴⁶, F. Beisiegel²⁴, A. S. Bell⁹⁴, G. Bella¹⁶¹, L. Bellagamba^{23b}, A. Bellerive³⁴, P. Bellos⁹, K. Beloborodov^{121a,121b}, K. Belotskiy¹¹¹, N. L. Belyaev¹¹¹, D. Benchechroun^{35a}, N. Benekos¹⁰, Y. Benhammou¹⁶¹, D. P. Benjamin⁶, M. Benoit⁵⁴, J. R. Bensinger²⁶, S. Bentvelsen¹¹⁹, L. Beresford¹³⁵, M. Beretta⁵¹, D. Berge⁴⁶, E. Bergeas Kuutmann¹⁷², N. Berger⁵, B. Bergmann¹⁴², L. J. Bergsten²⁶, J. Beringer¹⁸, S. Berlendis⁷, N. R. Bernard¹⁰², G. Bernardi¹³⁶, C. Bernius¹⁵³, F. U. Bernlochner²⁴, T. Berry⁹³, P. Berta⁹⁹, C. Bertella^{15a}, I. A. Bertram⁸⁹, O. Bessidskaia Bylund¹⁸², N. Besson¹⁴⁵, A. Bethani¹⁰⁰, S. Bethke¹¹⁴, A. Betti²⁴, A. J. Bevan⁹², J. Beyer¹¹⁴, D. S. Bhattacharya¹⁷⁷, R. Bi¹³⁹, R. M. Bianchi¹³⁹, O. Biebel¹¹³, D. Biedermann¹⁹, R. Bielski³⁶, K. Bierwagen⁹⁹, N. V. Biesuz^{71a,71b}, M. Biglietti^{74a}, T. R. V. Billoud¹⁰⁹, M. Bindi⁵³, A. Bingul^{12d}, C. Bini^{72a,72b}, S. Biondi^{23a,23b}, M. Birman¹⁸⁰, T. Bisanz⁵³, J. P. Biswal¹⁶¹, D. Biswas^{181,j}, A. Bitadze¹⁰⁰, C. Bittrich⁴⁸, K. Björke¹³⁴, K. M. Black²⁵, T. Blazek^{28a}, I. Bloch⁴⁶, C. Blocker²⁶, A. Blue⁵⁷, U. Blumenschein⁹², G. J. Bobbink¹¹⁹, V. S. Bobrovnikov^{121a,121b}, S. S. Bocchetta⁹⁶, A. Bocci⁴⁹, D. Boerner⁴⁶, D. Bogavac¹⁴, A. G. Bogdanchikov^{121a,121b}, C. Bohm^{45a}, V. Boisvert⁹³, P. Bokan^{53,172}, T. Bold^{83a}, A. S. Boldyrev¹¹², A. E. Bolz^{61b}, M. Bomben¹³⁶, M. Bona⁹², J. S. Bonilla¹³¹, M. Boonekamp¹⁴⁵, H. M. Borecka-Bielska⁹⁰, A. Borisov¹²², G. Borissov⁸⁹, J. Bortfeldt³⁶, D. Bortoletto¹³⁵, D. Boscherini^{23b}, M. Bosman¹⁴, J. D. Bossio Sola¹⁰³, K. Bouaouda^{35a}, J. Boudreau¹³⁹, E. V. Bouhova-Thacker⁸⁹, D. Boumediene³⁸, S. K. Boutle⁵⁷, A. Boveia¹²⁶, J. Boyd³⁶, D. Boye^{33b,ar}, I. R. Boyko⁷⁹, A. J. Bozson⁹³, J. Bracinik²¹, N. Brahimi¹⁰¹, G. Brandt¹⁸², O. Brandt³², F. Braren⁴⁶, B. Brau¹⁰², J. E. Brau¹³¹, W. D. Breaden Madden⁵⁷, K. Brendlinger⁴⁶, L. Brenner⁴⁶, R. Brenner¹⁷², S. Bressler¹⁸⁰, B. Brickwedde⁹⁹, D. L. Briglin²¹, D. Britton⁵⁷, D. Britzger¹¹⁴, I. Brock²⁴, R. Brock¹⁰⁶, G. Brooijmans³⁹, W. K. Brooks^{147c}, E. Brost¹²⁰, J. H. Broughton²¹, P. A. Bruckman de Renstrom⁸⁴, D. Bruncko^{28b}, A. Bruni^{23b}, G. Bruni^{23b}, L. S. Bruni¹¹⁹, S. Bruno^{73a,73b}, B. H. Brunt³², M. Bruschi^{23b}, N. Bruscino¹³⁹, P. Bryant³⁷, L. Bryngemark⁹⁶, T. Buanes¹⁷, Q. Buat³⁶, P. Buchholz¹⁵¹, A. G. Buckley⁵⁷, I. A. Budagov⁷⁹, M. K. Bugge¹³⁴, F. Bühner⁵²,

- O. Bulekov¹¹¹, T. J. Burch¹²⁰, S. Burdin⁹⁰, C. D. Burgard¹¹⁹, A. M. Burger¹²⁹, B. Burghgrave⁸, J. T. P. Burr⁴⁶, C. D. Burton¹¹, J. C. Burzynski¹⁰², V. Büscher⁹⁹, E. Buschmann⁵³, P. J. Bussey⁵⁷, J. M. Butler²⁵, C. M. Buttar⁵⁷, J. M. Butterworth⁹⁴, P. Butti³⁶, W. Buttinger³⁶, C. J. Buxo Vazquez¹⁰⁶, A. Buzatu¹⁵⁸, A. R. Buzykaev^{121a,121b}, G. Cabras^{23a,23b}, S. Cabrera Urbán¹⁷⁴, D. Caforio⁵⁶, H. Cai¹⁷³, V. M. M. Cairo¹⁵³, O. Cakir^{4a}, N. Calace³⁶, P. Calafiura¹⁸, A. Calandri¹⁰¹, G. Calderini¹³⁶, P. Calfayan⁶⁵, G. Callea⁵⁷, L. P. Caloba^{80b}, S. Calvente Lopez⁹⁸, D. Calvet³⁸, S. Calvet³⁸, T. P. Calvet¹⁵⁵, M. Calvetti^{71a,71b}, R. Camacho Toro¹³⁶, S. Camarda³⁶, D. Camarero Munoz⁹⁸, P. Camarri^{73a,73b}, D. Cameron¹³⁴, R. Caminal Armadans¹⁰², C. Camincher³⁶, S. Campana³⁶, M. Campanelli⁹⁴, A. Camplani⁴⁰, A. Campoverde¹⁵¹, V. Canale^{69a,69b}, A. Canesse¹⁰³, M. Cano Bret^{60c}, J. Cantero¹²⁹, T. Cao¹⁶¹, Y. Cao¹⁷³, M. D. M. Capeans Garrido³⁶, M. Capua^{41a,41b}, R. Cardarelli^{73a}, F. Cardillo¹⁴⁹, G. Carducci^{41a,41b}, I. Carli¹⁴³, T. Carli³⁶, G. Carlino^{69a}, B. T. Carlson¹³⁹, L. Carminati^{68a,68b}, R. M. D. Carney^{45a,45b}, S. Caron¹¹⁸, E. Carquin^{147c}, S. Carrá⁴⁶, J. W. S. Carter¹⁶⁷, M. P. Casado^{14e}, A. F. Casha¹⁶⁷, D. W. Casper¹⁷¹, R. Castelijns¹¹⁹, F. L. Castillo¹⁷⁴, V. Castillo Gimenez¹⁷⁴, N. F. Castro^{140a,140e}, A. Catinaccio³⁶, J. R. Catmore¹³⁴, A. Cattai³⁶, J. Caudron²⁴, V. Cavaliere²⁹, E. Cavallaro¹⁴, M. Cavalli-Sforza¹⁴, V. Cavasinni^{71a,71b}, E. Celebi^{12b}, F. Ceradini^{74a,74b}, L. Cerda Alberich¹⁷⁴, K. Cerny¹³⁰, A. S. Cerqueira^{80a}, A. Cerri¹⁵⁶, L. Cerrito^{73a,73b}, F. Cerutti¹⁸, A. Cervelli^{23a,23b}, S. A. Cetin^{12b}, Z. Chadi^{35a}, D. Chakraborty¹²⁰, S. K. Chan⁵⁹, W. S. Chan¹¹⁹, W. Y. Chan⁹⁰, J. D. Chapman³², B. Chargeishvili^{159b}, D. G. Charlton²¹, T. P. Charman⁹², C. C. Chau³⁴, S. Che¹²⁶, S. Chekanov⁶, S. V. Chekulaev^{168a}, G. A. Chelkov^{79,aw}, M. A. Chelstowska³⁶, B. Chen⁷⁸, C. Chen^{60a}, C. H. Chen⁷⁸, H. Chen²⁹, J. Chen^{60a}, J. Chen³⁹, S. Chen¹³⁷, S. J. Chen^{15c}, X. Chen^{15b,av}, Y. Chen⁸², Y.-H. Chen⁴⁶, H. C. Cheng^{63a}, H. J. Cheng^{15a,15d}, A. Cheplakov⁷⁹, E. Cheremushkina¹²², R. Cherkaoui El Moursli^{35e}, E. Cheu⁷, K. Cheung⁶⁴, T. J. A. Chevaléras¹⁴⁵, L. Chevalier¹⁴⁵, V. Chiarella⁵¹, G. Chiarelli^{71a}, G. Chiodini^{67a}, A. S. Chisholm²¹, A. Chitan^{27b}, I. Chiu¹⁶³, Y. H. Chiu¹⁷⁶, M. V. Chizhov⁷⁹, K. Choi⁶⁵, A. R. Chomont^{72a,72b}, S. Chouridou¹⁶², Y. S. Chow¹¹⁹, M. C. Chu^{63a}, X. Chu^{15a}, J. Chudoba¹⁴¹, A. J. Chuinard¹⁰³, J. J. Chwastowski⁸⁴, L. Chytka¹³⁰, D. Cieri¹¹⁴, K. M. Ciesla⁸⁴, D. Cinca⁴⁷, V. Cindro⁹¹, I. A. Cioară⁵⁴, A. Ciochio¹⁸, F. Ciotto^{69a,69b}, Z. H. Citron^{180,k}, M. Citterio^{68a}, D. A. Ciubotaru^{27b}, B. M. Ciungu¹⁶⁷, A. Clark⁵⁴, M. R. Clark³⁹, P. J. Clark⁵⁰, C. Clement^{45a,45b}, Y. Coadou¹⁰¹, M. Cobal^{66a,66c}, A. Coccaro^{55b}, J. Cochran⁷⁸, H. Cohen¹⁶¹, A. E. C. Coimbra³⁶, L. Colasurdo¹¹⁸, B. Cole³⁹, A. P. Colijn¹¹⁹, J. Collot⁵⁸, P. Conde Muñio^{140a,f}, E. Coniavitis⁵², S. H. Connell^{33b}, I. A. Connelly⁵⁷, S. Constantinescu^{27b}, F. Conventi^{69a,ay}, A. M. Cooper-Sarkar¹³⁵, F. Cormier¹⁷⁵, K. J. R. Cormier¹⁶⁷, L. D. Corpe⁹⁴, M. Corradi^{72a,72b}, E. E. Corrigan⁹⁶, F. Corriveau^{103,ae}, A. Cortes-Gonzalez³⁶, M. J. Costa¹⁷⁴, F. Costanza⁵, D. Costanzo¹⁴⁹, G. Cowan⁹³, J. W. Cowley³², J. Crane¹⁰⁰, K. Cranmer¹²⁴, S. J. Crawley⁵⁷, R. A. Creager¹³⁷, S. Crépe-Renaudin⁵⁸, F. Crescioli¹³⁶, M. Cristinziani²⁴, V. Croft¹¹⁹, G. Crosetti^{41a,41b}, A. Cueto⁵, T. Cuhadar Donszelmann¹⁴⁹, A. R. Cukierman¹⁵³, S. Czekierda⁸⁴, P. Czodrowski³⁶, M. J. Da Cunha Sargedas De Sousa^{60b}, J. V. Da Fonseca Pinto^{80b}, C. Da Via¹⁰⁰, W. Dabrowski^{83a}, T. Dado^{28a}, S. Dahbi^{35e}, T. Dai¹⁰⁵, C. Dallapiccola¹⁰², M. Dam⁴⁰, G. D'amen²⁹, V. D'Amico^{74a,74b}, J. Damp⁹⁹, J. R. Dandoy¹³⁷, M. F. Daneri³⁰, N. P. Dang^{181,j}, N. S. Dann¹⁰⁰, M. Danninger¹⁷⁵, V. Dao³⁶, G. Darbo^{55b}, O. Dartsis⁵, A. Dattagupta¹³¹, T. Daubney⁴⁶, S. D'Auria^{68a,68b}, W. Davey²⁴, C. David⁴⁶, T. Davidek¹⁴³, D. R. Davis⁴⁹, I. Dawson¹⁴⁹, K. De⁸, R. De Asmundis^{69a}, M. De Beurs¹¹⁹, S. De Castro^{23a,23b}, S. De Cecco^{72a,72b}, N. De Groot¹¹⁸, P. de Jong¹¹⁹, H. De la Torre¹⁰⁶, A. De Maria^{15c}, D. De Pedis^{72a}, A. De Salvo^{72a}, U. De Sanctis^{73a,73b}, M. De Santis^{73a,73b}, A. De Santo¹⁵⁶, K. De Vasconcelos Corga¹⁰¹, J. B. De Vivie De Regie¹³², C. Debenedetti¹⁴⁶, D. V. Dedovich⁷⁹, A. M. Deiana⁴², M. Del Gaudio^{41a,41b}, J. Del Peso⁹⁸, Y. Delabat Diaz⁴⁶, D. Delgove¹³², F. Deliot^{145,r}, C. M. Delitzsch⁷, M. Della Pietra^{69a,69b}, D. Della Volpe⁵⁴, A. Dell'Acqua³⁶, L. Dell'Asta^{73a,73b}, M. Delmastro⁵, C. Delporte¹³², P. A. Delsart⁵⁸, D. A. DeMarco¹⁶⁷, S. Demers¹⁸³, M. Demichev⁷⁹, G. Demontigny¹⁰⁹, S. P. Denisov¹²², D. Denysiuk¹¹⁹, L. D'Eramo¹³⁶, D. Derendarz⁸⁴, J. E. Derkaoui^{35d}, F. Derue¹³⁶, P. Dervan⁹⁰, K. Desch²⁴, C. Deterre⁴⁶, K. Dette¹⁶⁷, C. Deutsch²⁴, M. R. Devesa³⁰, P. O. Deviveiros³⁶, A. Dewhurst¹⁴⁴, F. A. Di Bello⁵⁴, A. Di Ciaccio^{73a,73b}, L. Di Ciaccio⁵, W. K. Di Clemente¹³⁷, C. Di Donato^{69a,69b}, A. Di Girolamo³⁶, G. Di Gregorio^{71a,71b}, B. Di Micco^{74a,74b}, R. Di Nardo¹⁰², K. F. Di Petrillo⁵⁹, R. Di Sipio¹⁶⁷, D. Di Valentino³⁴, C. Diaconu¹⁰¹, F. A. Dias⁴⁰, T. Dias Do Vale^{140a}, M. A. Diaz^{147a}, J. Dickinson¹⁸, E. B. Diehl¹⁰⁵, J. Dietrich¹⁹, S. Díez Cornell⁴⁶, A. Dimitrievska¹⁸, W. Ding^{15b}, J. Dingfelder²⁴, F. Dittus³⁶, F. Djama¹⁰¹, T. Djobava^{159b}, J. I. Djuvsland¹⁷, M. A. B. Do Vale^{80c}, M. Dobre^{27b}, D. Dodsworth²⁶, C. Doglioni⁹⁶, J. Dolejsi¹⁴³, Z. Dolezal¹⁴³, M. Donadelli^{80d}, B. Dong^{60c}, J. Donini³⁸, A. D'onofrio⁹², M. D'Onofrio⁹⁰, J. Dopke¹⁴⁴, A. Doria^{69a}, M. T. Dova⁸⁸, A. T. Doyle⁵⁷, E. Drechsler¹⁵², E. Dreyer¹⁵², T. Dreyer⁵³, A. S. Drobac¹⁷⁰, D. Du^{60b}, Y. Duan^{60b}, F. Dubinin¹¹⁰, M. Dubovsky^{28a}, A. Dubreuil⁵⁴, E. Duchovni¹⁸⁰, G. Duckeck¹¹³, A. Ducourthial¹³⁶, O. A. Ducu¹⁰⁹, D. Duda¹¹⁴, A. Dudarev³⁶, A. C. Dudder⁹⁹, E. M. Duffield¹⁸, L. Duflo¹³², M. Dührssen³⁶, C. Dülse¹⁸², M. Dumancic¹⁸⁰, A. E. Dumitriu^{27b}, A. K. Duncan⁵⁷, M. Dunford^{61a}, A. Duperrin¹⁰¹, H. Duran Yildiz^{4a}, M. Düren⁵⁶, A. Durglishvili^{159b}, D. Duschinger⁴⁸, B. Dutta⁴⁶, D. Duvnjak¹, G. I. Dyckes¹³⁷, M. Dyndal³⁶, S. Dysch¹⁰⁰, B. S. Dziedzic⁸⁴, K. M. Ecker¹¹⁴, R. C. Edgar¹⁰⁵, M. G. Eggleston⁴⁹, T. Eifert³⁶, G. Eigen¹⁷, K. Einsweiler¹⁸, T. Ekelof¹⁷², H. El Jarrari^{35e}, M. El Kacimi^{35c},

- R. El Kosseifi¹⁰¹, V. Ellajosyula¹⁷², M. Ellert¹⁷², F. Ellinghaus¹⁸², A. A. Elliot⁹², N. Ellis³⁶, J. Elmsheuser²⁹, M. Elsing³⁶, D. Emeliyanov¹⁴⁴, A. Emerman³⁹, Y. Enari¹⁶³, M. B. Epland⁴⁹, J. Erdmann⁴⁷, A. Ereditato²⁰, M. Errenst³⁶, M. Escalier¹³², C. Escobar¹⁷⁴, O. Estrada Pastor¹⁷⁴, E. Etzion¹⁶¹, H. Evans⁶⁵, A. Ezhilov¹³⁸, F. Fabbri⁵⁷, L. Fabbri^{23a,23b}, V. Fabiani¹¹⁸, G. Facini⁹⁴, R. M. Faisca Rodrigues Pereira^{140a}, R. M. Fakhruddinov¹²², S. Falciano^{72a}, P. J. Falke⁵, S. Falke⁵, J. Faltova¹⁴³, Y. Fang^{15a}, Y. Fang^{15a}, G. Fanourakis⁴⁴, M. Fanti^{68a,68b}, M. Faraj^{66a,66c,u}, A. Farbin⁸, A. Farilla^{74a}, E. M. Farina^{70a,70b}, T. Farooque¹⁰⁶, S. Farrell¹⁸, S. M. Farrington⁵⁰, P. Farthouat³⁶, F. Fassi^{35e}, P. Fassnacht³⁶, D. Fassouliotis⁹, M. Faucci Giannelli⁵⁰, W. J. Fawcett³², L. Fayard¹³², O. L. Fedin^{138,p}, W. Fedorko¹⁷⁵, M. Feickert⁴², L. Feligioni¹⁰¹, A. Fell¹⁴⁹, C. Feng^{60b}, E. J. Feng³⁶, M. Feng⁴⁹, M. J. Fenton⁵⁷, A. B. Fenyuk¹²², J. Ferrando⁴⁶, A. Ferrante¹⁷³, A. Ferrari¹⁷², P. Ferrari¹¹⁹, R. Ferrari^{70a}, D. E. Ferreira de Lima^{61b}, A. Ferrer¹⁷⁴, D. Ferrere⁵⁴, C. Ferretti¹⁰⁵, F. Fiedler⁹⁹, A. Filipčić⁹¹, F. Filthaut¹¹⁸, K. D. Finelli²⁵, M. C. N. Fiolhais^{140a,140c,a}, L. Fiorini¹⁷⁴, F. Fischer¹¹³, W. C. Fisher¹⁰⁶, I. Fleck¹⁵¹, P. Fleischmann¹⁰⁵, R. R. M. Fletcher¹³⁷, T. Flick¹⁸², B. M. Flierl¹¹³, L. Flores¹³⁷, L. R. Flores Castillo^{63a}, F. M. Follega^{75a,75b}, N. Fomin¹⁷, J. H. Foo¹⁶⁷, G. T. Forcolin^{75a,75b}, A. Formica¹⁴⁵, F. A. Förster¹⁴, A. C. Forti¹⁰⁰, A. G. Foster²¹, M. G. Foti¹³⁵, D. Fournier¹³², H. Fox⁸⁹, P. Francavilla^{71a,71b}, S. Francescato^{72a,72b}, M. Franchini^{23a,23b}, S. Franchino^{61a}, D. Francis³⁶, L. Franconi²⁰, M. Franklin⁵⁹, A. N. Fray⁹², P. M. Freeman²¹, B. Freund¹⁰⁹, W. S. Freund^{80b}, E. M. Freundlich⁴⁷, D. C. Frizzell¹²⁸, D. Froidevaux³⁶, J. A. Frost¹³⁵, C. Fukunaga¹⁶⁴, E. Fullana Torregrosa¹⁷⁴, E. Fumagalli^{55a,55b}, T. Fusayasu¹¹⁵, J. Fuster¹⁷⁴, A. Gabrielli^{23a,23b}, A. Gabrielli¹⁸, G. P. Gach^{83a}, S. Gadatsch⁵⁴, P. Gadow¹¹⁴, G. Gagliardi^{55a,55b}, L. G. Gagnon¹⁰⁹, C. Galea^{27b}, B. Galhardo^{140a}, G. E. Gallardo¹³⁵, E. J. Gallas¹³⁵, B. J. Gallop¹⁴⁴, G. Galster⁴⁰, R. Gamboa Goni⁹², K. K. Gan¹²⁶, S. Ganguly¹⁸⁰, J. Gao^{60a}, Y. Gao⁵⁰, Y. S. Gao^{31,m}, C. García¹⁷⁴, J. E. García Navarro¹⁷⁴, J. A. García Pascual^{15a}, C. Garcia-Argos⁵², M. Garcia-Sciveres¹⁸, R. W. Gardner³⁷, N. Garelli¹⁵³, S. Gargiulo⁵², V. Garonne¹³⁴, A. Gaudiello^{55a,55b}, G. Gaudio^{70a}, I. L. Gavrilenko¹¹⁰, A. Gavrilyuk¹²³, C. Gay¹⁷⁵, G. Gaycken⁴⁶, E. N. Gaziz¹⁰, A. A. Geanta^{27b}, C. M. Gee¹⁴⁶, C. N. P. Gee¹⁴⁴, J. Geisen⁵³, M. Geisen⁹⁹, M. P. Geisler^{61a}, C. Gemme^{55b}, M. H. Genest⁵⁸, C. Geng¹⁰⁵, S. Gentile^{72a,72b}, S. George⁹³, T. Geralis⁴⁴, L. O. Gerlach⁵³, P. Gessinger-Befurt⁹⁹, G. Gessner⁴⁷, S. Ghasemi¹⁵¹, M. Ghasemi Bostanabad¹⁷⁶, A. Ghosh¹³², A. Ghosh⁷⁷, B. Giacobbe^{23b}, S. Giagu^{72a,72b}, N. Giangiacomi^{23a,23b}, P. Giannetti^{71a}, A. Giannini^{69a,69b}, G. Giannini¹⁴, S. M. Gibson⁹³, M. Gignac¹⁴⁶, D. Gillberg³⁴, G. Gilles¹⁸², D. M. Gingrich^{3,ax}, M. P. Giordani^{66a,66c}, F. M. Giorgi^{23b}, P. F. Giraud¹⁴⁵, G. Giugliarelli^{66a,66c}, D. Giugni^{68a}, F. Giuli^{73a,73b}, S. Gkaitatzis¹⁶², I. Gkialas^{9,h}, E. L. Gkougkousis¹⁴, P. Gkoutoumis¹⁰, L. K. Gladilin¹¹², C. Glasman⁹⁸, J. Glatzer¹⁴, P. C. F. Glaysheer⁴⁶, A. Glazov⁴⁶, G. R. Gledhill¹³¹, M. Goblirsch-Kolb²⁶, D. Godin¹⁰⁹, S. Goldfarb¹⁰⁴, T. Golling⁵⁴, D. Golubkov¹²², A. Gomes^{140a,140b}, R. Goncalves Gama⁵³, R. Gonçalves^{140a,140b}, G. Gonella⁵², L. Gonella²¹, A. Gongadze⁷⁹, F. Gonnella²¹, J. L. Gonski⁵⁹, S. González de la Hoz¹⁷⁴, S. Gonzalez-Sevilla⁵⁴, G. R. Gonzalvo Rodriguez¹⁷⁴, L. Goossens³⁶, P. A. Gorbounov¹²³, H. A. Gordon²⁹, B. Gorini³⁶, E. Gorini^{67a,67b}, A. Gorišek⁹¹, A. T. Goshaw⁴⁹, M. I. Gostkin⁷⁹, C. A. Gottardo¹¹⁸, M. Gouighri^{35b}, D. Goudami^{35c}, A. G. Goussiou¹⁴⁸, N. Govender^{33b}, C. Goy⁵, E. Gozani¹⁶⁰, I. Grabowska-Bold^{83a}, E. C. Graham⁹⁰, J. Gramling¹⁷¹, E. Gramstad¹³⁴, S. Grancagnolo¹⁹, M. Grandi¹⁵⁶, V. Gratchev¹³⁸, P. M. Gravila^{27f}, F. G. Gravili^{67a,67b}, C. Gray⁵⁷, H. M. Gray¹⁸, C. Grefe²⁴, K. Gregersen⁹⁶, I. M. Gregor⁴⁶, P. Grenier¹⁵³, K. Grevtsov⁴⁶, C. Grieco¹⁴, N. A. Grieser¹²⁸, J. Griffiths⁸, A. A. Grillo¹⁴⁶, K. Grimm^{31,1}, S. Grinstein^{14,z}, J.-F. Grivaz¹³², S. Groh⁹⁹, E. Gross¹⁸⁰, J. Grosse-Knetter⁵³, Z. J. Grout⁹⁴, C. Grud¹⁰⁵, A. Grummer¹¹⁷, L. Guan¹⁰⁵, W. Guan¹⁸¹, J. Guenther³⁶, A. Guerguichon¹³², J. G. R. Guerrero Rojas¹⁷⁴, F. Guescini¹¹⁴, D. Guest¹⁷¹, R. Gugel⁵², T. Guillemin⁵, S. Guindon³⁶, U. Gul⁵⁷, J. Guo^{60c}, W. Guo¹⁰⁵, Y. Guo^{60a,t}, Z. Guo¹⁰¹, R. Gupta⁴⁶, S. Gurbuz^{12c}, G. Gustavino¹²⁸, M. Guth⁵², P. Gutierrez¹²⁸, C. Gutschow⁹⁴, C. Guyot¹⁴⁵, C. Gwenlan¹³⁵, C. B. Gwilliam⁹⁰, A. Haas¹²⁴, C. Haber¹⁸, H. K. Hadavand⁸, N. Haddad^{35e}, A. Hadeef^{60a}, S. Hageböck³⁶, M. Haleem¹⁷⁷, J. Haley¹²⁹, G. Halladjian¹⁰⁶, G. D. Hallowell¹⁰¹, K. Hamacher¹⁸², P. Hamal¹³⁰, K. Hamano¹⁷⁶, H. Hamdaoui^{35e}, G. N. Hamity¹⁴⁹, K. Han^{60a,ak}, L. Han^{60a}, S. Han^{15a,15d}, Y. F. Han¹⁶⁷, K. Hanagaki^{81,x}, M. Hance¹⁴⁶, D. M. Handl¹¹³, B. Haney¹³⁷, R. Hankache¹³⁶, E. Hansen⁹⁶, J. B. Hansen⁴⁰, J. D. Hansen⁴⁰, M. C. Hansen²⁴, P. H. Hansen⁴⁰, E. C. Hanson¹⁰⁰, K. Hara¹⁶⁹, T. Harenberg¹⁸², S. Harkusha¹⁰⁷, P. F. Harrison¹⁷⁸, N. M. Hartmann¹¹³, Y. Hasegawa¹⁵⁰, A. Hasib⁵⁰, S. Hassani¹⁴⁵, S. Haug²⁰, R. Hauser¹⁰⁶, L. B. Havener³⁹, M. Havranek¹⁴², C. M. Hawkes²¹, R. J. Hawkins³⁶, D. Hayden¹⁰⁶, C. Hayes¹⁵⁵, R. L. Hayes¹⁷⁵, C. P. Hays¹³⁵, J. M. Hays⁹², H. S. Hayward⁹⁰, S. J. Haywood¹⁴⁴, F. He^{60a}, M. P. Heath⁵⁰, V. Hedberg⁹⁶, L. Heelan⁸, S. Heer²⁴, K. K. Heidegger⁵², W. D. Heidorn⁷⁸, J. Heilman³⁴, S. Heim⁴⁶, T. Heim¹⁸, B. Heinemann^{46,as}, J. J. Heinrich¹³¹, L. Heinrich³⁶, C. Heinz⁵⁶, J. Hejbal¹⁴¹, L. Helary^{61b}, A. Held¹⁷⁵, S. Hellesund¹³⁴, C. M. Helling¹⁴⁶, S. Hellman^{45a,45b}, C. Helsens³⁶, R. C. W. Henderson⁸⁹, Y. Heng¹⁸¹, S. Henkelmann¹⁷⁵, A. M. Henriques Correia³⁶, G. H. Herbert¹⁹, H. Herde²⁶, V. Herget¹⁷⁷, Y. Hernández Jiménez^{33c}, H. Herr⁹⁹, M. G. Herrmann¹¹³, T. Herrmann⁴⁸, G. Herten⁵², R. Hertenberger¹¹³, L. Hervas³⁶, T. C. Herwig¹³⁷, G. G. Hesketh⁹⁴, N. P. Hessey^{168a}, A. Higashida¹⁶³, S. Higashino⁸¹, E. Higón-Rodríguez¹⁷⁴, K. Hildebrand³⁷, E. Hill¹⁷⁶, J. C. Hill³², K. K. Hill²⁹, K. H. Hiller⁴⁶, S. J. Hillier²¹, M. Hils⁴⁸, I. Hinchliffe¹⁸, F. Hinterkeuser²⁴, M. Hirose¹³³, S. Hirose⁵², D. Hirschbuehl¹⁸², B. Hiti⁹¹, O. Hladik¹⁴¹, D. R. Hlaluku^{33c}, X. Hoad⁵⁰, J. Hobbs¹⁵⁵, N. Hod¹⁸⁰, M. C. Hodgkinson¹⁴⁹, A. Hoecker³⁶, F. Hoenic¹¹³

D. Hohn⁵², D. Hohov¹³², T. R. Holmes³⁷, M. Holzbock¹¹³, L. B. A. H. Hommels³², S. Honda¹⁶⁹, T. M. Hong¹³⁹, J. C. Honig⁵², A. Hönl¹¹⁴, B. H. Hooberman¹⁷³, W. H. Hopkins⁶, Y. Horii¹¹⁶, P. Horn⁴⁸, L. A. Horyn³⁷, S. Hou¹⁵⁸, A. Hoummada^{35a}, J. Howarth¹⁰⁰, J. Hoya⁸⁸, M. Hrabovsky¹³⁰, J. Hrdinka⁷⁶, I. Hristova¹⁹, J. Hrivnac¹³², A. Hrynevich¹⁰⁸, T. Hryn'ova⁵, P. J. Hsu⁶⁴, S.-C. Hsu¹⁴⁸, Q. Hu²⁹, S. Hu^{60c}, Y. F. Hu^{15a}, D. P. Huang⁹⁴, Y. Huang^{60a}, Y. Huang^{15a}, Z. Hubacek¹⁴², F. Hubaut¹⁰¹, M. Huebner²⁴, F. Huegging²⁴, T. B. Huffman¹³⁵, M. Huhtinen³⁶, R. F. H. Hunter³⁴, P. Huo¹⁵⁵, A. M. Hupe³⁴, N. Huseynov^{79,ag}, J. Huston¹⁰⁶, J. Huth⁵⁹, R. Hyneman¹⁰⁵, S. Hyrych^{28a}, G. Iacobucci⁵⁴, G. Iakovidis²⁹, I. Ibragimov¹⁵¹, L. Iconomidou-Fayard¹³², Z. Idrissi^{35e}, P. Iengo³⁶, R. Ignazzi⁴⁰, O. Igonkina^{119,ab,*}, R. Iguchi¹⁶³, T. Iizawa⁵⁴, Y. Ikegami⁸¹, M. Ikeno⁸¹, D. Iliadis¹⁶², N. Ilic^{118,167,ae}, F. Iltzsche⁴⁸, G. Introzzi^{70a,70b}, M. Iodice^{74a}, K. Iordanidou^{168a}, V. Ippolito^{72a,72b}, M. F. Isacson¹⁷², M. Ishino¹⁶³, W. Islam¹²⁹, C. Issever¹³⁵, S. Istin¹⁶⁰, F. Ito¹⁶⁹, J. M. Iturbe Ponce^{63a}, R. Iuppa^{75a,75b}, A. Ivina¹⁸⁰, H. Iwasaki⁸¹, J. M. Izen⁴³, V. Izzo^{69a}, P. Jacka¹⁴¹, P. Jackson¹, R. M. Jacobs²⁴, B. P. Jaeger¹⁵², V. Jain², G. Jäkel¹⁸², K. B. Jakobi⁹⁹, K. Jakobs⁵², S. Jakobsen⁷⁶, T. Jakoubek¹⁴¹, J. Jamieson⁵⁷, K. W. Janas^{83a}, R. Jansky⁵⁴, J. Janssen²⁴, M. Janus⁵³, P. A. Janus^{83a}, G. Jarlskog⁹⁶, N. Javadov^{79,ag}, T. Javůrek³⁶, M. Javurkova⁵², F. Jeanneau¹⁴⁵, L. Jeanty¹³¹, J. Jejelava^{159a,ah}, A. Jelinskas¹⁷⁸, P. Jenni^{52,b}, J. Jeong⁴⁶, N. Jeong⁴⁶, S. Jézéquel⁵, H. Ji¹⁸¹, J. Jia¹⁵⁵, H. Jiang⁷⁸, Y. Jiang^{60a}, Z. Jiang^{153,q}, S. Jiggins⁵², F. A. Jimenez Morales³⁸, J. Jimenez Pena¹¹⁴, S. Jin^{15c}, A. Jinaru^{27b}, O. Jinnouchi¹⁶⁵, H. Jivan^{33c}, P. Johansson¹⁴⁹, K. A. Johns⁷, C. A. Johnson⁶⁵, K. Jon-And^{45a,45b}, R. W. L. Jones⁸⁹, S. D. Jones¹⁵⁶, S. Jones⁷, T. J. Jones⁹⁰, J. Jongmanns^{61a}, P. M. Jorge^{140a}, J. Jovicevic³⁶, X. Ju¹⁸, J. J. Junggeburth¹¹⁴, A. Juste Rozas^{14,z}, A. Kaczmarek⁸⁴, M. Kado^{72a,72b}, H. Kagan¹²⁶, M. Kagan¹⁵³, C. Kahra⁹⁹, T. Kaji¹⁷⁹, E. Kajomovitz¹⁶⁰, C. W. Kalderon⁹⁶, A. Kaluza⁹⁹, A. Kamenshchikov¹²², M. Kaneda¹⁶³, L. Kanjir⁹¹, Y. Kano¹⁶³, V. A. Kantserov¹¹¹, J. Kanzaki⁸¹, L. S. Kaplan¹⁸¹, D. Kar^{33c}, K. Karava¹³⁵, M. J. Kareem^{168b}, S. N. Karpov⁷⁹, Z. M. Karpova⁷⁹, V. Kartvelishvili⁸⁹, A. N. Karyukhin¹²², L. Kashif¹⁸¹, R. D. Kass¹²⁶, A. Kastanas^{45a,45b}, C. Kato^{60c,60d}, J. Katzy⁴⁶, K. Kawade¹⁵⁰, K. Kawagoe⁸⁷, T. Kawaguchi¹¹⁶, T. Kawamoto¹⁶³, G. Kawamura⁵³, E. F. Kay¹⁷⁶, V. F. Kazanin^{121a,121b}, R. Keeler¹⁷⁶, R. Kehoe⁴², J. S. Keller³⁴, E. Kellermann⁹⁶, D. Kelsey¹⁵⁶, J. J. Kempster²¹, J. Kendrick²¹, O. Kepka¹⁴¹, S. Kersten¹⁸², B. P. Kerševan⁹¹, S. Ketabchi Haghighat¹⁶⁷, M. Khader¹⁷³, F. Khalil-Zada¹³, M. Khandoga¹⁴⁵, A. Khanov¹²⁹, A. G. Kharlamov^{121a,121b}, T. Kharlamova^{121a,121b}, E. E. Khoda¹⁷⁵, A. Khodinov¹⁶⁶, T. J. Khoo⁵⁴, E. Khramov⁷⁹, J. Khubua^{159b}, S. Kido⁸², M. Kiehn⁵⁴, C. R. Kilby⁹³, Y. K. Kim³⁷, N. Kimura⁹⁴, O. M. Kind¹⁹, B. T. King^{90,*}, D. Kirchmeier⁴⁸, J. Kirk¹⁴⁴, A. E. Kiryunin¹¹⁴, T. Kishimoto¹⁶³, D. P. Kisliuk¹⁶⁷, V. Kitali⁴⁶, O. Kivernyk⁵, T. Klapdor-Kleingrothaus⁵², M. Klassen^{61a}, M. H. Klein¹⁰⁵, M. Klein⁹⁰, U. Klein⁹⁰, K. Kleinknecht⁹⁹, P. Klimek¹²⁰, A. Klimentov²⁹, T. Klingl²⁴, T. Klioutchnikova³⁶, F. F. Klitzner¹¹³, P. Kluit¹¹⁹, S. Kluth¹¹⁴, E. Kneringer⁷⁶, E. B. F. G. Knoops¹⁰¹, A. Knue⁵², D. Kobayashi⁸⁷, T. Kobayashi¹⁶³, M. Kobel⁴⁸, M. Kocian¹⁵³, P. Kodys¹⁴³, P. T. Koenig²⁴, T. Koffas³⁴, N. M. Köhler³⁶, T. Koi¹⁵³, M. Kolb^{61b}, I. Koletsou⁵, T. Komarek¹³⁰, T. Kondo⁸¹, N. Kondrashova^{60c}, K. Köneke⁵², A. C. König¹¹⁸, T. Kono¹²⁵, R. Konoplich^{124,an}, V. Konstantinides⁹⁴, N. Konstantinidis⁹⁴, B. Konya⁹⁶, R. Kopeliansky⁶⁵, S. Koperny^{83a}, K. Korcyl⁸⁴, K. Kordas¹⁶², G. Koren¹⁶¹, A. Korn⁹⁴, I. Korolkov¹⁴, E. V. Korolkova¹⁴⁹, N. Korotkova¹¹², O. Kortner¹¹⁴, S. Kortner¹¹⁴, T. Kosek¹⁴³, V. V. Kostyukhin¹⁶⁶, A. Kotskechagia¹³², A. Kotwal⁴⁹, A. Koulouris¹⁰, A. Kourkoulis-Charalampidi^{70a,70b}, C. Kourkoulis⁹, E. Kourlitis¹⁴⁹, V. Kouskoura²⁹, A. B. Kowalewska⁸⁴, R. Kowalewski¹⁷⁶, C. Kozakai¹⁶³, W. Kozanecki¹⁴⁵, A. S. Kozhin¹²², V. A. Kramarenko¹¹², G. Kramberger⁹¹, D. Krasnopevtsev^{60a}, M. W. Krasny¹³⁶, A. Krasznahorkay³⁶, D. Krauss¹¹⁴, J. A. Kremer^{83a}, J. Kretschmar⁹⁰, P. Krieger¹⁶⁷, F. Krieter¹¹³, A. Krishnan^{61b}, K. Krizka¹⁸, K. Kroeninger⁴⁷, H. Kroha¹¹⁴, J. Kroll¹⁴¹, J. Kroll¹³⁷, K. S. Krowpman¹⁰⁶, J. Krstic¹⁶, U. Kruchonak⁷⁹, H. Krüger²⁴, N. Krumnack⁷⁸, M. C. Kruse⁴⁹, J. A. Krzysiak⁸⁴, T. Kubota¹⁰⁴, O. Kuchinskaia¹⁶⁶, S. Kuday^{4b}, J. T. Kuechler⁴⁶, S. Kuehn³⁶, A. Kugel^{61a}, T. Kuhl⁴⁶, V. Kukhtin⁷⁹, R. Kukla¹⁰¹, Y. Kulchitsky^{107,aj}, S. Kuleshov^{147c}, Y. P. Kulinich¹⁷³, M. Kuna⁵⁸, T. Kunigo⁸⁵, A. Kupco¹⁴¹, T. Kupfer⁴⁷, O. Kuprash⁵², H. Kurashige⁸², L. L. Kurchaninov^{168a}, Y. A. Kurochkin¹⁰⁷, A. Kurova¹¹¹, M. G. Kurth^{15a,15d}, E. S. Kuwertz³⁶, M. Kuze¹⁶⁵, A. K. Kvam¹⁴⁸, J. Kvita¹³⁰, T. Kwan¹⁰³, A. La Rosa¹¹⁴, L. La Rotonda^{41a,41b}, F. La Ruffa^{41a,41b}, C. Lacasta¹⁷⁴, F. Lacava^{72a,72b}, D. P. J. Lack¹⁰⁰, H. Lacker¹⁹, D. Lacour¹³⁶, E. Ladygin⁷⁹, R. Lafaye⁵, B. Laforge¹³⁶, T. Lagouri^{33c}, S. Lai⁵³, S. Lammers⁶⁵, W. Lampl⁷, C. Lampoudis¹⁶², E. Lançon²⁹, U. Landgraf⁵², M. P. J. Landon⁹², M. C. Lanfermann⁵⁴, V. S. Lang⁴⁶, J. C. Lange⁵³, R. J. Langenberg³⁶, A. J. Lankford¹⁷¹, F. Lanni²⁹, K. Lantzsch²⁴, A. Lanza^{70a}, A. Lapertosa^{55a,55b}, S. Laplace¹³⁶, J. F. Laporte¹⁴⁵, T. Lari^{68a}, F. Lasagni Manghi^{23a,23b}, M. Lassnig³⁶, T. S. Lau^{63a}, A. Laudrain¹³², A. Laurier³⁴, M. Lavorgna^{69a,69b}, S. D. Lawlor⁹³, M. Lazzaroni^{68a,68b}, B. Le¹⁰⁴, E. Le Guirriec¹⁰¹, M. LeBlanc⁷, T. LeCompte⁶, F. Ledroit-Guillon⁵⁸, A. C. A. Lee⁹⁴, C. A. Lee²⁹, G. R. Lee¹⁷, L. Lee⁵⁹, S. C. Lee¹⁵⁸, S. J. Lee³⁴, S. Lee⁷⁸, B. Lefebvre^{168a}, H. P. Lefebvre⁹³, M. Lefebvre¹⁷⁶, F. Legger¹¹³, C. Leggett¹⁸, K. Lehmann¹⁵², N. Lehmann¹⁸², G. Lehmann Miotto³⁶, W. A. Leight⁴⁶, A. Leisos^{162,y}, M. A. L. Leite^{80d}, C. E. Leitgeb¹¹³, R. Leitner¹⁴³, D. Lellouch^{180,*}, K. J. C. Leney⁴², T. Lenz²⁴, B. Lenzi³⁶, R. Leone⁷, S. Leone^{71a}, C. Leonidopoulos⁵⁰, A. Leopold¹³⁶, G. Lerner¹⁵⁶, C. Leroy¹⁰⁹, R. Les¹⁶⁷, C. G. Lester³², M. Levchenko¹³⁸, J. Levêque⁵, D. Levin¹⁰⁵, L. J. Levinson¹⁸⁰, D. J. Lewis²¹, B. Li^{15b}, B. Li¹⁰⁵, C.-Q. Li^{60a}, F. Li^{60c},

H. Li^{60a}, H. Li^{60b}, J. Li^{60c}, K. Li¹⁵³, L. Li^{60c}, M. Li^{15a}, Q. Li^{15a,15d}, Q. Y. Li^{60a}, S. Li^{60c,60d}, X. Li⁴⁶, Y. Li⁴⁶, Z. Li^{60b}, Z. Liang^{15a}, B. Liberti^{73a}, A. Liblong¹⁶⁷, K. Lie^{63c}, C. Y. Lin³², K. Lin¹⁰⁶, T. H. Lin⁹⁹, R. A. Linck⁶⁵, J. H. Lindon²¹, A. L. Lioni⁵⁴, E. Lipeles¹³⁷, A. Lipniacka¹⁷, M. Lisovsky^{61b}, T. M. Liss^{173,au}, A. Lister¹⁷⁵, A. M. Litke¹⁴⁶, J. D. Little⁸, B. Liu⁷⁸, B. L. Liu⁶, H. B. Liu²⁹, H. Liu¹⁰⁵, J. B. Liu^{60a}, J. K. K. Liu¹³⁵, K. Liu¹³⁶, M. Liu^{60a}, P. Liu¹⁸, Y. Liu^{15a,15d}, Y. L. Liu¹⁰⁵, Y. W. Liu^{60a}, M. Livan^{70a,70b}, A. Lleres⁵⁸, J. Llorente Merino¹⁵², S. L. Lloyd⁹², C. Y. Lo^{63b}, F. Lo Sterzo⁴², E. M. Lobodzinska⁴⁶, P. Loch⁷, S. Loffredo^{73a,73b}, T. Lohse¹⁹, K. Lohwasser¹⁴⁹, M. Lokajicek¹⁴¹, J. D. Long¹⁷³, R. E. Long⁸⁹, L. Longo³⁶, K. A. Looper¹²⁶, J. A. Lopez^{147c}, I. Lopez Paz¹⁰⁰, A. Lopez Solis¹⁴⁹, J. Lorenz¹¹³, N. Lorenzo Martinez⁵, M. Losada²², P. J. Lösel¹¹³, A. Lösle⁵², X. Lou⁴⁶, X. Lou^{15a}, A. Lounis¹³², J. Love⁶, P. A. Love⁸⁹, J. J. Lozano Bahilo¹⁷⁴, M. Lu^{60a}, Y. J. Lu⁶⁴, H. J. Lubatti¹⁴⁸, C. Luci^{72a,72b}, A. Lucotte⁵⁸, C. Luedtke⁵², F. Luehring⁶⁵, I. Luise¹³⁶, L. Luminari^{72a}, B. Lund-Jensen¹⁵⁴, M. S. Lutz¹⁰², D. Lynn²⁹, R. Lysak¹⁴¹, E. Lytken⁹⁶, F. Lyu^{15a}, V. Lyubushkin⁷⁹, T. Lyubushkina⁷⁹, H. Ma²⁹, L. L. Ma^{60b}, Y. Ma^{60b}, G. Maccarrone⁵¹, A. Macchiolo¹¹⁴, C. M. Macdonald¹⁴⁹, J. Machado Miguens¹³⁷, D. Madaffari¹⁷⁴, R. Madar³⁸, W. F. Mader⁴⁸, N. Madysa⁴⁸, J. Maeda⁸², S. Maeland¹⁷, T. Maeno²⁹, M. Maerker⁴⁸, A. S. Maevskiy¹¹², V. Magerl⁵², N. Magini⁷⁸, D. J. Mahon³⁹, C. Maidantchik^{80b}, T. Maier¹¹³, A. Maio^{140a,140b,140d}, K. Maj^{83a}, O. Majersky^{28a}, S. Majewski¹³¹, Y. Makida⁸¹, N. Makovec¹³², B. Malaescu¹³⁶, Pa. Malecki⁸⁴, V. P. Maleev¹³⁸, F. Malek⁵⁸, U. Mallik⁷⁷, D. Malon⁶, C. Malone³², S. Maltezos¹⁰, S. Malyukov⁷⁹, J. Mamuzic¹⁷⁴, G. Mancini⁵¹, I. Mandić⁹¹, L. Manhaes de Andrade Filho^{80a}, I. M. Maniatis¹⁶², J. Manjarres Ramos⁴⁸, K. H. Mankinen⁹⁶, A. Mann¹¹³, A. Manousos⁷⁶, B. Mansoulie¹⁴⁵, I. Manthos¹⁶², S. Manzoni¹¹⁹, A. Marantis¹⁶², G. Marceca³⁰, L. Marchese¹³⁵, G. Marchiori¹³⁶, M. Marcisovsky¹⁴¹, L. Marcoccia^{73a,73b}, C. Marcon⁹⁶, C. A. Marin Tobon³⁶, M. Marjanovic¹²⁸, Z. Marshall¹⁸, M. U. F. Martensson¹⁷², S. Marti-Garcia¹⁷⁴, C. B. Martin¹²⁶, T. A. Martin¹⁷⁸, V. J. Martin⁵⁰, B. Martin dit Latour¹⁷, L. Martinelli^{74a,74b}, M. Martinez^{14,z}, V. I. Martinez Outschoorn¹⁰², S. Martin-Haugh¹⁴⁴, V. S. Martoiu^{27b}, A. C. Martyniuk⁹⁴, A. Marzin³⁶, S. R. Maschek¹¹⁴, L. Masetti⁹⁹, T. Mashimo¹⁶³, R. Mashinistov¹¹⁰, J. Masik¹⁰⁰, A. L. Maslennikov^{121a,121b}, L. Massa^{73a,73b}, P. Massarotti^{69a,69b}, P. Mastrandrea^{71a,71b}, A. Mastroberardino^{41a,41b}, T. Masubuchi¹⁶³, D. Matakias¹⁰, A. Matic¹¹³, P. Mättig²⁴, J. Maurer^{27b}, B. Maček⁹¹, D. A. Maximov^{121a,121b}, R. Mazini¹⁵⁸, I. Maznas¹⁶², S. M. Mazza¹⁴⁶, S. P. Mc Kee¹⁰⁵, T. G. McCarthy¹¹⁴, W. P. McCormack¹⁸, E. F. McDonald¹⁰⁴, J. A. Mcfayden³⁶, G. Mchedlidze^{159b}, M. A. McKay⁴², K. D. McLean¹⁷⁶, S. J. McMahon¹⁴⁴, P. C. McNamara¹⁰⁴, C. J. McNicol¹⁷⁸, R. A. McPherson^{176,ae}, J. E. Mdhuli^{33c}, Z. A. Meadows¹⁰², S. Meehan³⁶, T. Megy⁵², S. Mehlhase¹¹³, A. Mehta⁹⁰, T. Meideck⁵⁸, B. Meirose⁴³, D. Melini¹⁷⁴, B. R. Mellado Garcia^{33c}, J. D. Mellenthin⁵³, M. Melo^{28a}, F. Meloni⁴⁶, A. Melzer²⁴, S. B. Menary¹⁰⁰, E. D. Mendes Gouveia^{140a,140e}, L. Meng³⁶, X. T. Meng¹⁰⁵, S. Menke¹¹⁴, E. Meoni^{41a,41b}, S. Mergelmeyer¹⁹, S. A. M. Merkt¹³⁹, C. Merlassino²⁰, P. Mermod⁵⁴, L. Merola^{69a,69b}, C. Meroni^{68a}, O. Meshkov^{110,112}, J. K. R. Meshreki¹⁵¹, A. Messina^{72a,72b}, J. Metcalfe⁶, A. S. Mete¹⁷¹, C. Meyer⁶⁵, J. Meyer¹⁶⁰, J.-P. Meyer¹⁴⁵, H. Meyer Zu Theenhausen^{61a}, F. Miano¹⁵⁶, M. Michetti¹⁹, R. P. Middleton¹⁴⁴, L. Mijović⁵⁰, G. Mikenberg¹⁸⁰, M. Mikesstikova¹⁴¹, M. Mikuž⁹¹, H. Mildner¹⁴⁹, M. Milesi¹⁰⁴, A. Milic¹⁶⁷, D. A. Millar⁹², D. W. Miller³⁷, A. Milov¹⁸⁰, D. A. Milstead^{45a,45b}, R. A. Mina^{153,q}, A. A. Minaenko¹²², M. Miñano Moya¹⁷⁴, I. A. Minashvili^{159b}, A. I. Mincer¹²⁴, B. Mindur^{83a}, M. Mineev⁷⁹, Y. Minegishi¹⁶³, L. M. Mir¹⁴, A. Mirto^{67a,67b}, K. P. Mistry¹³⁷, T. Mitani¹⁷⁹, J. Mitrevski¹¹³, V. A. Mitsou¹⁷⁴, M. Mittal^{60c}, O. Miu¹⁶⁷, A. Miucci²⁰, P. S. Miyagawa¹⁴⁹, A. Mizukami⁸¹, J. U. Mjörnmark⁹⁶, T. Mkrtchyan¹⁸⁴, M. Mlynarikova¹⁴³, T. Moa^{45a,45b}, K. Mochizuki¹⁰⁹, P. Mogg⁵², S. Mohapatra³⁹, R. Moles-Valls²⁴, M. C. Mondragon¹⁰⁶, K. Mönig⁴⁶, J. Monk⁴⁰, E. Monnier¹⁰¹, A. Montalbano¹⁵², J. Montejo Berlingen³⁶, M. Montella⁹⁴, F. Monticelli⁸⁸, S. Monzani^{68a}, N. Morange¹³², D. Moreno²², M. Moreno Llácer³⁶, C. Moreno Martinez¹⁴, P. Morettini^{55b}, M. Morgenstern¹¹⁹, S. Morgenstern⁴⁸, D. Mori¹⁵², M. Morii⁵⁹, M. Morinaga¹⁷⁹, V. Morisbak¹³⁴, A. K. Morley³⁶, G. Mornacchi³⁶, A. P. Morris⁹⁴, L. Morvaj¹⁵⁵, P. Moschovakos³⁶, B. Moser¹¹⁹, M. Mosidze^{159b}, T. Moskalets¹⁴⁵, H. J. Moss¹⁴⁹, J. Moss^{31,n}, E. J. W. Moyse¹⁰², S. Muanza¹⁰¹, J. Mueller¹³⁹, R. S. P. Mueller¹¹³, D. Muenstermann⁸⁹, G. A. Mullier⁹⁶, J. L. Munoz Martinez¹⁴, F. J. Munoz Sanchez¹⁰⁰, P. Murin^{28b}, W. J. Murray^{144,178}, A. Murrone^{68a,68b}, M. Muškinja¹⁸, C. Mwewa^{33a}, A. G. Myagkov^{122,ao}, J. Myers¹³¹, M. Myska¹⁴², B. P. Nachman¹⁸, O. Nackenhorst⁴⁷, A. Nag Nag⁴⁸, K. Nagai¹³⁵, K. Nagano⁸¹, Y. Nagasaka⁶², M. Nagel⁵², J. L. Nagle²⁹, E. Nagy¹⁰¹, A. M. Nairz³⁶, Y. Nakahama¹¹⁶, K. Nakamura⁸¹, T. Nakamura¹⁶³, I. Nakano¹²⁷, H. Nanjo¹³³, F. Napolitano^{61a}, R. F. Naranjo Garcia⁴⁶, R. Narayan⁴², I. Naryshkin¹³⁸, T. Naumann⁴⁶, G. Navarro²², P. Y. Nechaeva¹¹⁰, F. Nechansky⁴⁶, T. J. Neep²¹, A. Negri^{70a,70b}, M. Negrini^{23b}, C. Nellist⁵³, M. E. Nelson¹³⁵, S. Nemecek¹⁴¹, P. Nemethy¹²⁴, M. Nessi^{36,d}, M. S. Neubauer¹⁷³, M. Neumann¹⁸², P. R. Newman²¹, Y. S. Ng¹⁹, Y. W. Y. Ng¹⁷¹, B. Ngair^{35e}, H. D. N. Nguyen¹⁰¹, T. Nguyen Manh¹⁰⁹, E. Nibigira³⁸, R. B. Nickerson¹³⁵, R. Nicolaidou¹⁴⁵, D. S. Nielsen⁴⁰, J. Nielsen¹⁴⁶, N. Nikiforou¹¹, V. Nikolaenko^{122,ao}, I. Nikolic-Audit¹³⁶, K. Nikolopoulos²¹, P. Nilsson²⁹, H. R. Nindhito⁵⁴, Y. Ninomiya⁸¹, A. Nisati^{72a}, N. Nishu^{60c}, R. Nisius¹¹⁴, I. Nitsche⁴⁷, T. Nitta¹⁷⁹, T. Nobe¹⁶³, Y. Noguchi⁸⁵, I. Nomidis¹³⁶, M. A. Nomura²⁹, M. Nordberg³⁶, N. Norjoharuddeen¹³⁵, T. Novak⁹¹, O. Novgorodova⁴⁸, R. Novotny¹⁴², L. Nozka¹³⁰, K. Ntekas¹⁷¹, E. Nurse⁹⁴, F. G. Oakham^{34,ax}, H. Oberlack¹¹⁴, J. Ocariz¹³⁶, A. Ochi⁸²,

- I. Ochoa³⁹, J. P. Ochoa-Ricoux^{147a}, K. O'Connor²⁶, S. Oda⁸⁷, S. Odaka⁸¹, S. Oerdek⁵³, A. Ogrodnik^{83a}, A. Oh¹⁰⁰, S. H. Oh⁴⁹, C. C. Ohm¹⁵⁴, H. Oide¹⁶⁵, M. L. Ojeda¹⁶⁷, H. Okawa¹⁶⁹, Y. Okazaki⁸⁵, Y. Okumura¹⁶³, T. Okuyama⁸¹, A. Olariu^{27b}, L. F. Oleiro Seabra^{140a}, S. A. Olivares Pino^{147a}, D. Oliveira Damazio²⁹, J. L. Oliver¹, M. J. R. Olsson¹⁷¹, A. Olszewski⁸⁴, J. Olszowska⁸⁴, D. C. O'Neil¹⁵², A. P. O'Neill¹³⁵, A. Onofre^{140a,140e}, P. U. E. Onyisi¹¹, H. Oppen¹³⁴, M. J. Oreglia³⁷, G. E. Orellana⁸⁸, D. Orestano^{74a,74b}, N. Orlando¹⁴, R. S. Orr¹⁶⁷, V. O'Shea⁵⁷, R. Ospanov^{60a}, G. Otero y Garzon³⁰, H. Otono⁸⁷, P. S. Ott^{61a}, M. Ouchrif^{35d}, J. Ouellette²⁹, F. Ould-Saada¹³⁴, A. Ouraou¹⁴⁵, Q. Ouyang^{15a}, M. Owen⁵⁷, R. E. Owen²¹, V. E. Ozcan^{12c}, N. Ozturk⁸, J. Pacalt¹³⁰, H. A. Pacey³², K. Pachal⁴⁹, A. Pacheco Pages¹⁴, C. Padilla Aranda¹⁴, S. Pagan Griso¹⁸, M. Paganini¹⁸³, G. Palacino⁶⁵, S. Palazzo⁵⁰, S. Palestini³⁶, M. Palka^{83b}, D. Pallin³⁸, I. Panagoulas¹⁰, C. E. Pandini³⁶, J. G. Panduro Vazquez⁹³, P. Pani⁴⁶, G. Panizzo^{66a,66c}, L. Paolozzi⁵⁴, C. Papadatos¹⁰⁹, K. Papageorgiou^{9,h}, S. Parajuli⁴³, A. Paramonov⁶, D. Paredes Hernandez^{63b}, S. R. Paredes Saenz¹³⁵, B. Parida¹⁶⁶, T. H. Park¹⁶⁷, A. J. Parker³¹, M. A. Parker³², F. Parodi^{55a,55b}, E. W. Parrish¹²⁰, J. A. Parsons³⁹, U. Parzefall⁵², L. Pascual Dominguez¹³⁶, V. R. Pascuzzi¹⁶⁷, J. M. P. Pasner¹⁴⁶, F. Pasquali¹¹⁹, E. Pasqualucci^{72a}, S. Passaggio^{55b}, F. Pastore⁹³, P. Pasuwan^{45a,45b}, S. Patariaia⁹⁹, J. R. Pater¹⁰⁰, A. Pathak^{181j}, T. Pauly³⁶, B. Pearson¹¹⁴, M. Pedersen¹³⁴, L. Pedraza Diaz¹¹⁸, R. Pedro^{140a}, T. Peiffer⁵³, S. V. Peleganchuk^{121a,121b}, O. Penc¹⁴¹, H. Peng^{60a}, B. S. Peralva^{80a}, M. M. Perego¹³², A. P. Pereira Peixoto^{140a}, D. V. Perepelitsa²⁹, F. Peri¹⁹, L. Perini^{68a,68b}, H. Pernegger³⁶, S. Perrella^{69a,69b}, K. Peters⁴⁶, R. F. Y. Peters¹⁰⁰, B. A. Petersen³⁶, T. C. Petersen⁴⁰, E. Petil¹⁰¹, A. Petridis¹, C. Petridou¹⁶², P. Petroff¹³², M. Petrov¹³⁵, F. Petrucci^{74a,74b}, M. Pettee¹⁸³, N. E. Pettersson¹⁰², K. Petukhova¹⁴³, A. Peyaud¹⁴⁵, R. Pezoa^{147c}, L. Pezzotti^{70a,70b}, T. Pham¹⁰⁴, F. H. Phillips¹⁰⁶, P. W. Phillips¹⁴⁴, M. W. Phipps¹⁷³, G. Piacquadio¹⁵⁵, E. Pianori¹⁸, A. Picazio¹⁰², R. H. Pickles¹⁰⁰, R. Piegaia³⁰, D. Pietreanu^{27b}, J. E. Pilcher³⁷, A. D. Pilkington¹⁰⁰, M. Pinamonti^{73a,73b}, J. L. Pinfold³, M. Pitt¹⁶¹, L. Pizzimento^{73a,73b}, M.-A. Pleier²⁹, V. Pleskot¹⁴³, E. Plotnikova⁷⁹, P. Podberezko^{121a,121b}, R. Poettgen⁹⁶, R. Poggi⁵⁴, L. Poggioli¹³², I. Pogrebnyak¹⁰⁶, D. Pohl²⁴, I. Pokharel⁵³, G. Polesello^{70a}, A. Poley¹⁸, A. Policicchio^{72a,72b}, R. Polifka¹⁴³, A. Polini^{23b}, C. S. Pollard⁴⁶, V. Polychronakos²⁹, D. Ponomarenko¹¹¹, L. Pontecorvo³⁶, S. Popa^{27a}, G. A. Popeneciu^{27d}, L. Portales⁵, D. M. Portillo Quintero⁵⁸, S. Pospisil¹⁴², K. Potamianos⁴⁶, I. N. Potrap⁷⁹, C. J. Potter³², H. Potti¹¹, T. Poulsen⁹⁶, J. Poveda³⁶, T. D. Powell¹⁴⁹, G. Pownall⁴⁶, M. E. Pozo Astigarraga³⁶, P. Pralavorio¹⁰¹, S. Prell⁷⁸, D. Price¹⁰⁰, M. Primavera^{67a}, S. Prince¹⁰³, M. L. Proffitt¹⁴⁸, N. Proklova¹¹¹, K. Prokofiev^{63c}, F. Prokoshin⁷⁹, S. Protopopescu²⁹, J. Proudfoot⁶, M. Przybycien^{83a}, D. Pudzha¹³⁸, A. Puri¹⁷³, P. Puzo¹³², J. Qian¹⁰⁵, Y. Qin¹⁰⁰, A. Quadt⁵³, M. Queitsch-Maitland⁴⁶, A. Qureshi¹, M. Racko^{28a}, P. Rados¹⁰⁴, F. Ragusa^{68a,68b}, G. Rahal⁹⁷, J. A. Raine⁵⁴, S. Rajagopalan²⁹, A. Ramirez Morales⁹², K. Ran^{15a,15d}, T. Rashid¹³², S. Raspopov⁵, D. M. Rauch⁴⁶, F. Rauscher¹¹³, S. Rave⁹⁹, B. Ravina¹⁴⁹, I. Ravinovitch¹⁸⁰, J. H. Rawling¹⁰⁰, M. Raymond³⁶, A. L. Read¹³⁴, N. P. Readoff⁵⁸, M. Reale^{67a,67b}, D. M. Rebuffi^{70a,70b}, A. Redelbach¹⁷⁷, G. Redlinger²⁹, K. Reeves⁴³, L. Rehnisch¹⁹, J. Reichert¹³⁷, D. Reikher¹⁶¹, A. Reiss⁹⁹, A. Rej¹⁵¹, C. Rembser³⁶, M. Renda^{27b}, M. Rescigno^{72a}, S. Resconi^{68a}, E. D. Resseguie¹³⁷, S. Rettie¹⁷⁵, E. Reynolds²¹, O. L. Rezanova^{121a,121b}, P. Reznicek¹⁴³, E. Ricci^{75a,75b}, R. Richter¹¹⁴, S. Richter⁴⁶, E. Richter-Was^{83b}, O. Ricken²⁴, M. Ridel¹³⁶, P. Rieck¹¹⁴, C. J. Riegel¹⁸², O. Rifki⁴⁶, M. Rijssenbeek¹⁵⁵, A. Rimoldi^{70a,70b}, M. Rimoldi⁴⁶, L. Rinaldi^{23b}, G. Ripellino¹⁵⁴, I. Riu¹⁴, J. C. Rivera Vergara¹⁷⁶, F. Rizatdinova¹²⁹, E. Rizvi⁹², C. Rizzi³⁶, R. T. Roberts¹⁰⁰, S. H. Robertson^{103,ae}, M. Robin⁴⁶, D. Robinson³², J. E. M. Robinson⁴⁶, C. M. Robles Gajardo^{147c}, A. Robson⁵⁷, A. Rocchi^{73a,73b}, E. Rocco⁹⁹, C. Roda^{71a,71b}, S. Rodriguez Bosca¹⁷⁴, A. Rodriguez Perez¹⁴, D. Rodriguez Rodriguez¹⁷⁴, A. M. Rodríguez Vera^{168b}, S. Roe³⁶, O. Røhne¹³⁴, R. Röhrig¹¹⁴, R. A. Rojas^{147c}, C. P. A. Roland⁶⁵, J. Roloff⁵⁹, A. Romanouk¹¹¹, M. Romano^{23a,23b}, N. Rompotis⁹⁰, M. Ronzani¹²⁴, L. Roos¹³⁶, S. Rosati^{72a}, K. Rosbach⁵², G. Rosin¹⁰², B. J. Rosser¹³⁷, E. Rossi⁴⁶, E. Rossi^{74a,74b}, E. Rossi^{69a,69b}, L. P. Rossi^{55b}, L. Rossini^{68a,68b}, R. Rosten¹⁴, M. Rotaru^{27b}, J. Rothberg¹⁴⁸, D. Rousseau¹³², G. Rovelli^{70a,70b}, A. Roy¹¹, D. Roy^{33c}, A. Rozanov¹⁰¹, Y. Rozen¹⁶⁰, X. Ruan^{33c}, F. Rubbo¹⁵³, F. Rühr⁵², A. Ruiz-Martinez¹⁷⁴, A. Rummler³⁶, Z. Rurikova⁵², N. A. Rusakovitch⁷⁹, H. L. Russell¹⁰³, L. Rustige^{38,47}, J. P. Rutherford⁷, E. M. Rüttinger¹⁴⁹, M. Rybar³⁹, G. Rybkin¹³², E. B. Rye¹³⁴, A. Ryzhov¹²², P. Sabatini⁵³, G. Sabato¹¹⁹, S. Sacerdoti¹³², H. F.-W. Sadrozinski¹⁴⁶, R. Sadykov⁷⁹, F. Safai Tehrani^{72a}, B. Safarzadeh Samani¹⁵⁶, P. Saha¹²⁰, S. Saha¹⁰³, M. Sahinsoy^{61a}, A. Sahu¹⁸², M. Saimpert⁴⁶, M. Saito¹⁶³, T. Saito¹⁶³, H. Sakamoto¹⁶³, A. Sakharov^{124,an}, D. Salamani⁵⁴, G. Salamanna^{74a,74b}, J. E. Salazar Loyola^{147c}, P. H. Sales De Bruin¹⁷², A. Salnikov¹⁵³, J. Salt¹⁷⁴, D. Salvatore^{41a,41b}, F. Salvatore¹⁵⁶, A. Salvucci^{63a,63b,63c}, A. Salzburger³⁶, J. Samarati³⁶, D. Sammel⁵², D. Sampsonidis¹⁶², D. Sampsonidou¹⁶², J. Sánchez¹⁷⁴, A. Sanchez Pineda^{66a,66c}, H. Sandaker¹³⁴, C. O. Sander⁴⁶, I. G. Sanderswood⁸⁹, M. Sandhoff¹⁸², C. Sandoval²², D. P. C. Sankey¹⁴⁴, M. Sannino^{55a,55b}, Y. Sano¹¹⁶, A. Sansoni⁵¹, C. Santoni³⁸, H. Santos^{140a,140b}, S. N. Santpur¹⁸, A. Santra¹⁷⁴, A. Sapronov⁷⁹, J. G. Saraiva^{140a,140d}, O. Sasaki⁸¹, K. Sato¹⁶⁹, F. Sauerburger⁵², E. Sauvan⁵, P. Savard^{167,ax}, N. Savic¹¹⁴, R. Sawada¹⁶³, C. Sawyer¹⁴⁴, L. Sawyer^{95,al}, C. Sbarra^{23b}, A. Sbrizzi^{23a}, T. Scanlon⁹⁴, J. Schaarschmidt¹⁴⁸, P. Schacht¹¹⁴, B. M. Schachtner¹¹³, D. Schaefer³⁷, L. Schaefer¹³⁷, J. Schaeffer⁹⁹, S. Schaepe³⁶, U. Schäfer⁹⁹, A. C. Schaffer¹³², D. Schaile¹¹³, R. D. Schamberger¹⁵⁵, N. Scharmberg¹⁰⁰, V. A. Schegelsky¹³⁸, D. Scheirich¹⁴³,

F. Schenck¹⁹, M. Schernau¹⁷¹, C. Schiavi^{55a,55b}, S. Schier¹⁴⁶, L. K. Schildgen²⁴, Z. M. Schillaci²⁶, E. J. Schioppa³⁶, M. Schioppa^{41a,41b}, K. E. Schleicher⁵², S. Schlenker³⁶, K. R. Schmidt-Sommerfeld¹¹⁴, K. Schmieden³⁶, C. Schmitt⁹⁹, S. Schmitt⁴⁶, S. Schmitz⁹⁹, J. C. Schmoeckel⁴⁶, U. Schnoor⁵², L. Schoeffel¹⁴⁵, A. Schoening^{61b}, P. G. Scholer⁵², E. Schopf¹³⁵, M. Schott⁹⁹, J. F. P. Schouwenberg¹¹⁸, J. Schovancova³⁶, S. Schramm⁵⁴, F. Schroeder¹⁸², A. Schulte⁹⁹, H.-C. Schultz-Coulon^{61a}, M. Schumacher⁵², B. A. Schumm¹⁴⁶, Ph. Schune¹⁴⁵, A. Schwartzman¹⁵³, T. A. Schwarz¹⁰⁵, Ph. Schwemling¹⁴⁵, R. Schwienhorst¹⁰⁶, A. Sciandra¹⁴⁶, G. Sciolla²⁶, M. Scodeggio⁴⁶, M. Scornajenghi^{41a,41b}, F. Scuri^{71a}, F. Scutti¹⁰⁴, L. M. Scyboz¹¹⁴, C. D. Sebastiani^{72a,72b}, P. Seema¹⁹, S. C. Seidel¹¹⁷, A. Seiden¹⁴⁶, B. D. Seidlitz²⁹, T. Seiss³⁷, J. M. Seixas^{80b}, G. Sekhniaidze^{69a}, K. Sekhon¹⁰⁵, S. J. Sekula⁴², N. Semprini-Cesari^{23a,23b}, S. Sen⁴⁹, S. Senkin³⁸, C. Serfon⁷⁶, L. Serin¹³², L. Serkin^{66a,66b}, M. Sessa^{60a}, H. Severini¹²⁸, T. Šfiligoj⁹¹, F. Sforza^{55a,55b}, A. Sfyrly⁵⁴, E. Shabalina⁵³, J. D. Shahinian¹⁴⁶, N. W. Shaikh^{45a,45b}, D. Shaked Renous¹⁸⁰, L. Y. Shan^{15a}, R. Shang¹⁷³, J. T. Shank²⁵, M. Shapiro¹⁸, A. Sharma¹³⁵, A. S. Sharma¹, P. B. Shatalov¹²³, K. Shaw¹⁵⁶, S. M. Shaw¹⁰⁰, A. Shcherbakova¹³⁸, M. Shehade¹⁸⁰, Y. Shen¹²⁸, N. Sherafati³⁴, A. D. Sherman²⁵, P. Sherwood⁹⁴, L. Shi^{158,at}, S. Shimizu⁸¹, C. O. Shimmin¹⁸³, Y. Shimogama¹⁷⁹, M. Shimojima¹¹⁵, I. P. J. Shipsey¹³⁵, S. Shirabe⁸⁷, M. Shiyakova^{79,ac}, J. Shlomi¹⁸⁰, A. Shmeleva¹¹⁰, M. J. Shochet³⁷, J. Shojaii¹⁰⁴, D. R. Shope¹²⁸, S. Shrestha¹²⁶, E. M. Shrif^{33c}, E. Shulga¹⁸⁰, P. Sicho¹⁴¹, A. M. Sickles¹⁷³, P. E. Sidebo¹⁵⁴, E. Sideras Haddad^{33c}, O. Sidiropoulou³⁶, A. Sidoti^{23a,23b}, F. Siegert⁴⁸, Dj. Sijacki¹⁶, M. Jr. Silva¹⁸¹, M. V. Silva Oliveira^{80a}, S. B. Silverstein^{45a}, S. Simion¹³², E. Simioni⁹⁹, R. Simoniello⁹⁹, S. Simsek^{12b}, P. Sinervo¹⁶⁷, V. Sinetckii^{110,112}, N. B. Sinev¹³¹, M. Sioli^{23a,23b}, I. Siral¹⁰⁵, S. Yu. Sivoklokov¹¹², J. Sjölin^{45a,45b}, E. Skorda⁹⁶, P. Skubic¹²⁸, M. Slawinska⁸⁴, K. Sliwa¹⁷⁰, R. Slovak¹⁴³, V. Smakhtin¹⁸⁰, B. H. Smart¹⁴⁴, J. Smiesko^{28a}, N. Smirnov¹¹¹, S. Yu. Smirnov¹¹¹, Y. Smirnov¹¹¹, L. N. Smirnova^{112,v}, O. Smirnova⁹⁶, J. W. Smith⁵³, M. Smizanska⁸⁹, K. Smolek¹⁴², A. Smykiewicz⁸⁴, A. A. Snesarev¹¹⁰, H. L. Snoek¹¹⁹, I. M. Snyder¹³¹, S. Snyder²⁹, R. Sobie^{176,ae}, A. Soffer¹⁶¹, A. Sogaard⁵⁰, F. Sohns⁵³, C. A. Solans Sanchez³⁶, E. Yu. Soldatov¹¹¹, U. Soldevila¹⁷⁴, A. A. Solodkov¹²², A. Soloshenko⁷⁹, O. V. Solovyanov¹²², V. Solovyev¹³⁸, P. Sommer¹⁴⁹, H. Son¹⁷⁰, W. Song¹⁴⁴, W. Y. Song^{168b}, A. Sopczak¹⁴², F. Sopkova^{28b}, C. L. Sotiropoulou^{71a,71b}, S. Sottocornola^{70a,70b}, R. Soualah^{66a,66c,g}, A. M. Soukharev^{121a,121b}, D. South⁴⁶, S. Spagnolo^{67a,67b}, M. Spalla¹¹⁴, M. Spangenberg¹⁷⁸, F. Spanò⁹³, D. Sperlich⁵², T. M. Spieker^{61a}, R. Spighi^{23b}, G. Spigo³⁶, M. Spina¹⁵⁶, D. P. Spiteri⁵⁷, M. Spousta¹⁴³, A. Stabile^{68a,68b}, B. L. Stamas¹²⁰, R. Stamen^{61a}, M. Stamenkovic¹¹⁹, E. Stanecka⁸⁴, B. Stanislaus¹³⁵, M. M. Stanitzki⁴⁶, M. Stankaityte¹³⁵, B. Stapf¹¹⁹, E. A. Starchenko¹²², G. H. Stark¹⁴⁶, J. Stark⁵⁸, S. H. Stark⁴⁰, P. Staroba¹⁴¹, P. Starovoitov^{61a}, S. Stärz¹⁰³, R. Staszewski⁸⁴, G. Stavropoulos⁴⁴, M. Stegler⁴⁶, P. Steinberg²⁹, A. L. Steinhebel¹³¹, B. Stelzer¹⁵², H. J. Stelzer¹³⁹, O. Stelzer-Chilton^{168a}, H. Stenzel⁵⁶, T. J. Stevenson¹⁵⁶, G. A. Stewart³⁶, M. C. Stockton³⁶, G. Stoica^{27b}, M. Stolarski^{140a}, S. Stonjek¹¹⁴, A. Straessner⁴⁸, J. Strandberg¹⁵⁴, S. Strandberg^{45a,45b}, M. Strauss¹²⁸, P. Strizenec^{28b}, R. Ströhmer¹⁷⁷, D. M. Strom¹³¹, R. Stroynowski⁴², A. Strubig⁵⁰, S. A. Stucci²⁹, B. Stugu¹⁷, J. Stupak¹²⁸, N. A. Styles⁴⁶, D. Su¹⁵³, S. Suchek^{61a}, V. V. Sulin¹¹⁰, M. J. Sullivan⁹⁰, D. M. S. Sultan⁵⁴, S. Sultansoy^{4c}, T. Sumida⁸⁵, S. Sun¹⁰⁵, X. Sun³, K. Suruliz¹⁵⁶, C. J. E. Suster¹⁵⁷, M. R. Sutton¹⁵⁶, S. Suzuki⁸¹, M. Svatos¹⁴¹, M. Swiatlowski³⁷, S. P. Swift², T. Swirski¹⁷⁷, A. Sydorenko⁹⁹, I. Sykora^{28a}, M. Sykora¹⁴³, T. Sykora¹⁴³, D. Ta⁹⁹, K. Tackmann^{46,aa}, J. Taenzer¹⁶¹, A. Taffard¹⁷¹, R. Tafirout^{168a}, H. Takai²⁹, R. Takashima⁸⁶, K. Takeda⁸², T. Takeshita¹⁵⁰, E. P. Takeva⁵⁰, Y. Takubo⁸¹, M. Talby¹⁰¹, A. A. Talyshv^{121a,121b}, N. M. Tamir¹⁶¹, J. Tanaka¹⁶³, M. Tanaka¹⁶⁵, R. Tanaka¹³², S. Tapia Araya¹⁷³, S. Tapprogge⁹⁹, A. Tarek Abouelfadl Mohamed¹³⁶, S. Tarem¹⁶⁰, K. Tariq^{60b}, G. Tarna^{27b,c}, G. F. Tartarelli^{68a}, P. Tas¹⁴³, M. Tasevsky¹⁴¹, T. Tashiro⁸⁵, E. Tassi^{41a,41b}, A. Tavares Delgado^{140a,140b}, Y. Tayalati^{35e}, A. J. Taylor⁵⁰, G. N. Taylor¹⁰⁴, W. Taylor^{168b}, A. S. Tee⁸⁹, R. Teixeira De Lima¹⁵³, P. Teixeira-Dias⁹³, H. Ten Kate³⁶, J. J. Teoh¹¹⁹, S. Terada⁸¹, K. Terashi¹⁶³, J. Terron⁹⁸, S. Terzo¹⁴, M. Testa⁵¹, R. J. Teuscher^{167,ae}, S. J. Thais¹⁸³, T. Thevenaux-Pelzer⁴⁶, F. Thiele⁴⁰, D. W. Thomas⁹³, J. O. Thomas⁴², J. P. Thomas²¹, A. S. Thompson⁵⁷, P. D. Thompson²¹, L. A. Thomsen¹⁸³, E. Thomson¹³⁷, E. J. Thorpe⁹², R. E. Ticse Torres⁵³, V. O. Tikhomirov^{110,ap}, Yu. A. Tikhonov^{121a,121b}, S. Timoshenko¹¹¹, P. Tipton¹⁸³, S. Tisserant¹⁰¹, K. Todome^{23a,23b}, S. Todorova-Nova⁵, S. Todt⁴⁸, J. Tojo⁸⁷, S. Tokár^{28a}, K. Tokushuku⁸¹, E. Tolley¹²⁶, K. G. Tomiwa^{33c}, M. Tomoto¹¹⁶, L. Tompkins^{153,q}, B. Tong⁵⁹, P. Tornambe¹⁰², E. Torrence¹³¹, H. Torres⁴⁸, E. Torró Pastor¹⁴⁸, C. Toscirri¹³⁵, J. Toth^{101,ad}, D. R. Tovey¹⁴⁹, A. Traet¹⁷, C. J. Treado¹²⁴, T. Trefzger¹⁷⁷, F. Tresoldi¹⁵⁶, A. Tricoli²⁹, I. M. Trigger^{168a}, S. Trincas-Duvold¹³⁶, W. Trischuk¹⁶⁷, B. Trocme⁵⁸, A. Trofymov¹⁴⁵, C. Troncon^{68a}, M. Trovatelli¹⁷⁶, F. Trovato¹⁵⁶, L. Truong^{33b}, M. Trzebinski⁸⁴, A. Trzupek⁸⁴, F. Tsai⁴⁶, J. C.-L. Tseng¹³⁵, P. V. Tsiarshka^{107,aj}, A. Tsigotis¹⁶², V. Tsiskaridze¹⁵⁵, E. G. Tskhadadze^{159a}, M. Tsopoulou¹⁶², I. I. Tsukerman¹²³, V. Tsulaia¹⁸, S. Tsuno⁸¹, D. Tsybychev¹⁵⁵, Y. Tu^{63b}, A. Tudorache^{27b}, V. Tudorache^{27b}, T. T. Tulbure^{27a}, A. N. Tuna⁵⁹, S. Turchikhin⁷⁹, D. Turgeman¹⁸⁰, I. Turk Cakir^{4b,w}, R. J. Turner²¹, R. T. Turra^{68a}, P. M. Tuts³⁹, S. Tzamarias¹⁶², E. Tzovara⁹⁹, G. Ucchielli⁴⁷, K. Uchida¹⁶³, I. Ueda⁸¹, M. Ughetto^{45a,45b}, F. Ukegawa¹⁶⁹, G. Unal³⁶, A. Undrus²⁹, G. Unel¹⁷¹, F. C. Ungaro¹⁰⁴, Y. Unno⁸¹, K. Uno¹⁶³, J. Urban^{28b}, P. Urquijo¹⁰⁴, G. Usai⁸, Z. Uysal^{12d}, L. Vacavant¹⁰¹, V. Vacek¹⁴², B. Vachon¹⁰³, K. O. H. Vadla¹³⁴, A. Vaidya⁹⁴, C. Valderanis¹¹³, E. Valdes Santurio^{45a,45b}, M. Valente⁵⁴, S. Valentineti^{23a,23b}, A. Valero¹⁷⁴, L. Valéry⁴⁶

R. A. Vallance²¹, A. Vallier³⁶, J. A. Valls Ferrer¹⁷⁴, T. R. Van Daalen¹⁴, P. Van Gemmeren⁶, I. Van Vulpen¹¹⁹, M. Vanadia^{73a,73b}, W. Vandelli³⁶, E. R. Vandewall¹²⁹, A. Vaniachine¹⁶⁶, D. Vannicola^{72a,72b}, R. Vari^{72a}, E. W. Varnes⁷, C. Varni^{55a,55b}, T. Varol¹⁵⁸, D. Varouchas¹³², K. E. Varvell¹⁵⁷, M. E. Vasile^{27b}, G. A. Vasquez¹⁷⁶, J. G. Vasquez¹⁸³, F. Vazeille³⁸, D. Vazquez Furelos¹⁴, T. Vazquez Schroeder³⁶, J. Veatch⁵³, V. Vecchio^{74a,74b}, M. J. Veen¹¹⁹, L. M. Veloce¹⁶⁷, F. Veloso^{140a,140c}, S. Veneziano^{72a}, A. Ventura^{67a,67b}, N. Venturi³⁶, A. Verbitskiy¹¹⁴, V. Vercesi^{70a}, M. Verducci^{71a,71b}, C. M. Vergel Infante⁷⁸, C. Vergis²⁴, W. Verkerke¹¹⁹, A. T. Vermeulen¹¹⁹, J. C. Vermeulen¹¹⁹, M. C. Vetterli^{152,ax}, N. Viaux Maira^{147c}, M. Vicente Barreto Pinto⁵⁴, T. Vickey¹⁴⁹, O. E. Vickey Boeriu¹⁴⁹, G. H. A. Viehhauser¹³⁵, L. Vigani^{61b}, M. Villa^{23a,23b}, M. Villaplana Perez^{68a,68b}, E. Vilucchi⁵¹, M. G. Vincet³⁴, G. S. Virdee²¹, A. Vishwakarma⁴⁶, C. Vittori^{23a,23b}, I. Vivarelli¹⁵⁶, M. Vogel¹⁸², P. Vokac¹⁴², S. E. von Buddenbrock^{33c}, E. Von Toerne²⁴, V. Vorobel¹⁴³, K. Vorobev¹¹¹, M. Vos¹⁷⁴, J. H. Vosseveld⁹⁰, M. Vozak¹⁰⁰, N. Vranjes¹⁶, M. Vranjes Milosavljevic¹⁶, V. Vrba¹⁴², M. Vreeswijk¹¹⁹, R. Vuillermet³⁶, I. Vukotic³⁷, P. Wagner²⁴, W. Wagner¹⁸², J. Wagner-Kuhr¹¹³, S. Wahdan¹⁸², H. Wahlberg⁸⁸, V. M. Walbrecht¹¹⁴, J. Walder⁸⁹, R. Walker¹¹³, S. D. Walker⁹³, W. Walkowiak¹⁵¹, V. Wallangen^{45a,45b}, A. M. Wang⁵⁹, C. Wang^{60c}, C. Wang^{60b}, F. Wang¹⁸¹, H. Wang¹⁸, H. Wang³, J. Wang^{63a}, J. Wang¹⁵⁷, J. Wang^{61b}, P. Wang⁴², Q. Wang¹²⁸, R.-J. Wang⁹⁹, R. Wang^{60a}, R. Wang⁶, S. M. Wang¹⁵⁸, W. T. Wang^{60a}, W. Wang^{15c,af}, W. X. Wang^{60a,af}, Y. Wang^{60a,am}, Z. Wang^{60c}, C. Wanotayaroj⁴⁶, A. Warburton¹⁰³, C. P. Ward³², D. R. Wardrope⁹⁴, N. Warrack⁵⁷, A. Washbrook⁵⁰, A. T. Watson²¹, M. F. Watson²¹, G. Watts¹⁴⁸, B. M. Waugh⁹⁴, A. F. Webb¹¹, S. Webb⁹⁹, C. Weber¹⁸³, M. S. Weber²⁰, S. A. Weber³⁴, S. M. Weber^{61a}, A. R. Weidberg¹³⁵, J. Weingarten⁴⁷, M. Weirich⁹⁹, C. Weiser⁵², P. S. Wells³⁶, T. Wenaus²⁹, T. Wengler³⁶, S. Wenig³⁶, N. Wermes²⁴, M. D. Werner⁷⁸, M. Wessels^{61a}, T. D. Weston²⁰, K. Whalen¹³¹, N. L. Whallon¹⁴⁸, A. M. Wharton⁸⁹, A. S. White¹⁰⁵, A. White⁸, M. J. White¹, D. Whiteson¹⁷¹, B. W. Whitmore⁸⁹, W. Wiedenmann¹⁸¹, M. Wieler¹⁴⁴, N. Wieseotte⁹⁹, C. Wigglesworth⁴⁰, L. A. M. Wiik-Fuchs⁵², F. Wilk¹⁰⁰, H. G. Wilkens³⁶, L. J. Wilkins⁹³, H. H. Williams¹³⁷, S. Williams³², C. Willis¹⁰⁶, S. Willocq¹⁰², J. A. Wilson²¹, I. Wingerter-Seez⁵, E. Winkels¹⁵⁶, F. Winklmeier¹³¹, O. J. Winston¹⁵⁶, B. T. Winter⁵², M. Wittgen¹⁵³, M. Wobisch⁹⁵, A. Wolf⁹⁹, T. M. H. Wolf¹¹⁹, R. Wolff¹⁰¹, R. W. Wölker¹³⁵, J. Wollrath⁵², M. W. Wolter⁸⁴, H. Wolters^{140a,140c}, V. W. S. Wong¹⁷⁵, N. L. Woods¹⁴⁶, S. D. Worm²¹, B. K. Wosiek⁸⁴, K. W. Woźniak⁸⁴, K. Wraight⁵⁷, S. L. Wu¹⁸¹, X. Wu⁵⁴, Y. Wu^{60a}, T. R. Wyatt¹⁰⁰, B. M. Wynne⁵⁰, S. Xella⁴⁰, Z. Xi¹⁰⁵, L. Xia¹⁷⁸, X. Xiao¹⁰⁵, I. Xiotidis¹⁵⁶, D. Xu^{15a}, H. Xu^{60a,c}, L. Xu²⁹, T. Xu¹⁴⁵, W. Xu¹⁰⁵, Z. Xu^{60b}, Z. Xu¹⁵³, B. Yabsley¹⁵⁷, S. Yacoub^{33a}, K. Yajima¹³³, D. P. Yallup⁹⁴, D. Yamaguchi¹⁶⁵, Y. Yamaguchi¹⁶⁵, A. Yamamoto⁸¹, M. Yamatani¹⁶³, T. Yamazaki¹⁶³, Y. Yamazaki⁸², Z. Yan²⁵, H. J. Yang^{60c,60d}, H. T. Yang¹⁸, S. Yang⁷⁷, X. Yang^{58,60b}, Y. Yang¹⁶³, W.-M. Yao¹⁸, Y. C. Yap⁴⁶, Y. Yasu⁸¹, E. Yatsenko^{60c,60d}, J. Ye⁴², S. Ye²⁹, I. Yeletsikh⁷⁹, M. R. Yexley⁸⁹, E. Yigitbasi²⁵, K. Yorita¹⁷⁹, K. Yoshihara¹³⁷, C. J. S. Young³⁶, C. Young¹⁵³, J. Yu⁷⁸, R. Yuan^{60b,i}, X. Yue^{61a}, S. P. Y. Yuen²⁴, M. Zaazoua^{35e}, B. Zabinski⁸⁴, G. Zacharis¹⁰, E. Zaffaroni⁵⁴, J. Zahreddine¹³⁶, A. M. Zaitsev^{122,ao}, T. Zakareishvili^{159b}, N. Zakharchuk³⁴, S. Zambito⁵⁹, D. Zanzi³⁶, D. R. Zaripovas⁵⁷, S. V. Zeiřner⁴⁷, C. Zeitnitz¹⁸², G. Zemaityte¹³⁵, J. C. Zeng¹⁷³, O. Zenin¹²², T. Ženiř^{28a}, D. Zerwas¹³², M. Zgubić¹³⁵, B. Zhang^{15c}, D. F. Zhang^{15b}, G. Zhang^{15b}, H. Zhang^{15c}, J. Zhang⁶, L. Zhang^{15c}, L. Zhang^{60a}, M. Zhang¹⁷³, R. Zhang²⁴, X. Zhang^{60b}, Y. Zhang^{15a,15d}, Z. Zhang^{63a}, Z. Zhang¹³², P. Zhao⁴⁹, Y. Zhao^{60b}, Z. Zhao^{60a}, A. Zhemchugov⁷⁹, Z. Zheng¹⁰⁵, D. Zhong¹⁷³, B. Zhou¹⁰⁵, C. Zhou¹⁸¹, M. S. Zhou^{15a,15d}, M. Zhou¹⁵⁵, N. Zhou^{60c}, Y. Zhou⁷, C. G. Zhu^{60b}, C. Zhu^{15a}, H. L. Zhu^{60a}, H. Zhu^{15a}, J. Zhu¹⁰⁵, Y. Zhu^{60a}, X. Zhuang^{15a}, K. Zhukov¹¹⁰, V. Zhulanov^{121a,121b}, D. Zieminska⁶⁵, N. I. Zimine⁷⁹, S. Zimmermann⁵², Z. Zinonos¹¹⁴, M. Ziolkowski¹⁵¹, L. Živković¹⁶, G. Zobernig¹⁸¹, A. Zoccoli^{23a,23b}, K. Zoch⁵³, T. G. Zorbas¹⁴⁹, R. Zou³⁷, L. Zwalinski³⁶

¹ Department of Physics, University of Adelaide, Adelaide, Australia

² Physics Department, SUNY Albany, Albany, NY, USA

³ Department of Physics, University of Alberta, Edmonton, AB, Canada

⁴ (a) Department of Physics, Ankara University, Ankara, Turkey; (b) Istanbul Aydin University, Istanbul, Turkey; (c) Division of Physics, TOBB University of Economics and Technology, Ankara, Turkey

⁵ LAPP, Université Grenoble Alpes, Université Savoie Mont Blanc, CNRS/IN2P3, Annecy, France

⁶ High Energy Physics Division, Argonne National Laboratory, Argonne, IL, USA

⁷ Department of Physics, University of Arizona, Tucson, AZ, USA

⁸ Department of Physics, University of Texas at Arlington, Arlington, TX, USA

⁹ Physics Department, National and Kapodistrian University of Athens, Athens, Greece

¹⁰ Physics Department, National Technical University of Athens, Zografou, Greece

¹¹ Department of Physics, University of Texas at Austin, Austin, TX, USA

- 12 (a) Bahcesehir University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey; (b) Istanbul Bilgi University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey; (c) Department of Physics, Bogazici University, Istanbul, Turkey; (d) Department of Physics Engineering, Gaziantep University, Gaziantep, Turkey
- 13 Institute of Physics, Azerbaijan Academy of Sciences, Baku, Azerbaijan
- 14 Institut de Física d'Altes Energies (IFAE), Barcelona Institute of Science and Technology, Barcelona, Spain
- 15 (a) Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China; (b) Physics Department, Tsinghua University, Beijing, China; (c) Department of Physics, Nanjing University, Nanjing, China; (d) University of Chinese Academy of Science (UCAS), Beijing, China
- 16 Institute of Physics, University of Belgrade, Belgrade, Serbia
- 17 Department for Physics and Technology, University of Bergen, Bergen, Norway
- 18 Physics Division, Lawrence Berkeley National Laboratory and University of California, Berkeley, CA, USA
- 19 Institut für Physik, Humboldt Universität zu Berlin, Berlin, Germany
- 20 Albert Einstein Center for Fundamental Physics and Laboratory for High Energy Physics, University of Bern, Bern, Switzerland
- 21 School of Physics and Astronomy, University of Birmingham, Birmingham, UK
- 22 Facultad de Ciencias y Centro de Investigaciones, Universidad Antonio Nariño, Bogotá, Colombia
- 23 (a) Dipartimento di Fisica, INFN Bologna and Università di Bologna, Bologna, Italy; (b) INFN Sezione di Bologna, Bologna, Italy
- 24 Physikalisches Institut, Universität Bonn, Bonn, Germany
- 25 Department of Physics, Boston University, Boston, MA, USA
- 26 Department of Physics, Brandeis University, Waltham, MA, USA
- 27 (a) Transilvania University of Brasov, Brasov, Romania; (b) Horia Hulubei National Institute of Physics and Nuclear Engineering, Bucharest, Romania; (c) Department of Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania; (d) National Institute for Research and Development of Isotopic and Molecular Technologies, Physics Department, Cluj Napoca, Romania; (e) University Politehnica Bucharest, Bucharest, Romania; (f) West University in Timisoara, Timisoara, Romania
- 28 (a) Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovak Republic; (b) Department of Subnuclear Physics, Institute of Experimental Physics of the Slovak Academy of Sciences, Kosice, Slovak Republic
- 29 Physics Department, Brookhaven National Laboratory, Upton, NY, USA
- 30 Departamento de Física, Universidad de Buenos Aires, Buenos Aires, Argentina
- 31 California State University, California, CA, USA
- 32 Cavendish Laboratory, University of Cambridge, Cambridge, UK
- 33 (a) Department of Physics, University of Cape Town, Cape Town, South Africa; (b) Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg, South Africa; (c) School of Physics, University of the Witwatersrand, Johannesburg, South Africa
- 34 Department of Physics, Carleton University, Ottawa, ON, Canada
- 35 (a) Faculté des Sciences Ain Chock, Réseau Universitaire de Physique des Hautes Energies - Université Hassan II, Casablanca, Morocco; (b) Faculté des Sciences, Université Ibn-Tofail, Kénitra, Morocco; (c) Faculté des Sciences Semlalia, Université Cadi Ayyad, LPHEA-Marrakech, Morocco; (d) Faculté des Sciences, Université Mohamed Premier and LPTPM, Oujda, Morocco; (e) Faculté des sciences, Université Mohammed V, Rabat, Morocco
- 36 CERN, Geneva, Switzerland
- 37 Enrico Fermi Institute, University of Chicago, Chicago, IL, USA
- 38 LPC, Université Clermont Auvergne, CNRS/IN2P3, Clermont-Ferrand, France
- 39 Nevis Laboratory, Columbia University, Irvington, NY, USA
- 40 Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark
- 41 (a) Dipartimento di Fisica, Università della Calabria, Rende, Italy; (b) INFN Gruppo Collegato di Cosenza, Laboratori Nazionali di Frascati, Frascati, Italy
- 42 Physics Department, Southern Methodist University, Dallas, TX, USA
- 43 Physics Department, University of Texas at Dallas, Richardson, TX, USA
- 44 National Centre for Scientific Research “Demokritos”, Agia Paraskevi, Greece
- 45 (a) Department of Physics, Stockholm University, Sweden; (b) Oskar Klein Centre, Stockholm, Sweden
- 46 Deutsches Elektronen-Synchrotron DESY, Hamburg and Zeuthen, Germany
- 47 Lehrstuhl für Experimentelle Physik IV, Technische Universität Dortmund, Dortmund, Germany

- ⁴⁸ Institut für Kern- und Teilchenphysik, Technische Universität Dresden, Dresden, Germany
- ⁴⁹ Department of Physics, Duke University, Durham, NC, USA
- ⁵⁰ SUPA - School of Physics and Astronomy, University of Edinburgh, Edinburgh, UK
- ⁵¹ INFN e Laboratori Nazionali di Frascati, Frascati, Italy
- ⁵² Physikalisches Institut, Albert-Ludwigs-Universität Freiburg, Freiburg, Germany
- ⁵³ II. Physikalisches Institut, Georg-August-Universität Göttingen, Göttingen, Germany
- ⁵⁴ Département de Physique Nucléaire et Corpusculaire, Université de Genève, Geneva, Switzerland
- ⁵⁵ ^(a)Dipartimento di Fisica, Università di Genova, Genoa, Italy; ^(b)INFN Sezione di Genova, Genoa, Italy
- ⁵⁶ II. Physikalisches Institut, Justus-Liebig-Universität Giessen, Giessen, Germany
- ⁵⁷ SUPA - School of Physics and Astronomy, University of Glasgow, Glasgow, UK
- ⁵⁸ LPSC, Université Grenoble Alpes, CNRS/IN2P3, Grenoble INP, Grenoble, France
- ⁵⁹ Laboratory for Particle Physics and Cosmology, Harvard University, Cambridge, MA, USA
- ⁶⁰ ^(a)Department of Modern Physics and State Key Laboratory of Particle Detection and Electronics, University of Science and Technology of China, Hefei, China; ^(b)Institute of Frontier and Interdisciplinary Science and Key Laboratory of Particle Physics and Particle Irradiation (MOE), Shandong University, Qingdao, China; ^(c)School of Physics and Astronomy, Shanghai Jiao Tong University, KLPPAC-MoE, SKLPPC, Shanghai, China; ^(d)Tsung-Dao Lee Institute, Shanghai, China
- ⁶¹ ^(a)Kirchhoff-Institut für Physik, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany; ^(b)Physikalisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany
- ⁶² Faculty of Applied Information Science, Hiroshima Institute of Technology, Hiroshima, Japan
- ⁶³ ^(a)Department of Physics, Chinese University of Hong Kong, Shatin, N.T., Hong Kong, China; ^(b)Department of Physics, University of Hong Kong, Hong Kong, China; ^(c)Department of Physics and Institute for Advanced Study, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, China
- ⁶⁴ Department of Physics, National Tsing Hua University, Hsinchu, Taiwan
- ⁶⁵ Department of Physics, Indiana University, Bloomington, IN, USA
- ⁶⁶ ^(a)INFN Gruppo Collegato di Udine, Sezione di Trieste, Udine, Italy; ^(b)ICTP, Trieste, Italy; ^(c)Dipartimento Politecnico di Ingegneria e Architettura, Università di Udine, Udine, Italy
- ⁶⁷ ^(a)INFN Sezione di Lecce, Lecce, Italy; ^(b)Dipartimento di Matematica e Fisica, Università del Salento, Lecce, Italy
- ⁶⁸ ^(a)INFN Sezione di Milano, Milan, Italy; ^(b)Dipartimento di Fisica, Università di Milano, Milan, Italy
- ⁶⁹ ^(a)INFN Sezione di Napoli, Naples, Italy; ^(b)Dipartimento di Fisica, Università di Napoli, Naples, Italy
- ⁷⁰ ^(a)INFN Sezione di Pavia, Pavia, Italy; ^(b)Dipartimento di Fisica, Università di Pavia, Pavia, Italy
- ⁷¹ ^(a)INFN Sezione di Pisa, Pisa, Italy; ^(b)Dipartimento di Fisica E. Fermi, Università di Pisa, Pisa, Italy
- ⁷² ^(a)INFN Sezione di Roma, Rome, Italy; ^(b)Dipartimento di Fisica, Sapienza Università di Roma, Rome, Italy
- ⁷³ ^(a)INFN Sezione di Roma Tor Vergata, Rome, Italy; ^(b)Dipartimento di Fisica, Università di Roma Tor Vergata, Rome, Italy
- ⁷⁴ ^(a)INFN Sezione di Roma Tre, Rome, Italy; ^(b)Dipartimento di Matematica e Fisica, Università Roma Tre, Rome, Italy
- ⁷⁵ ^(a)INFN-TIFPA, Rome, Italy; ^(b)Università degli Studi di Trento, Trento, Italy
- ⁷⁶ Institut für Astro- und Teilchenphysik, Leopold-Franzens-Universität, Innsbruck, Austria
- ⁷⁷ University of Iowa, Iowa City, IA, USA
- ⁷⁸ Department of Physics and Astronomy, Iowa State University, Ames, IA, USA
- ⁷⁹ Joint Institute for Nuclear Research, Dubna, Russia
- ⁸⁰ ^(a)Departamento de Engenharia Elétrica, Universidade Federal de Juiz de Fora (UFJF), Juiz de Fora, Brazil; ^(b)Universidade Federal do Rio De Janeiro COPPE/EE/IF, Rio de Janeiro, Brazil; ^(c)Universidade Federal de São João del Rei (UFSJ), São João del Rei, Brazil; ^(d)Instituto de Física, Universidade de São Paulo, São Paulo, Brazil
- ⁸¹ KEK, High Energy Accelerator Research Organization, Tsukuba, Japan
- ⁸² Graduate School of Science, Kobe University, Kobe, Japan
- ⁸³ ^(a)AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Kraków, Poland; ^(b)Marian Smoluchowski Institute of Physics, Jagiellonian University, Kraków, Poland
- ⁸⁴ Institute of Nuclear Physics Polish Academy of Sciences, Kraków, Poland
- ⁸⁵ Faculty of Science, Kyoto University, Kyoto, Japan
- ⁸⁶ Kyoto University of Education, Kyoto, Japan
- ⁸⁷ Research Center for Advanced Particle Physics and Department of Physics, Kyushu University, Fukuoka, Japan
- ⁸⁸ Instituto de Física La Plata, Universidad Nacional de La Plata and CONICET, La Plata, Argentina

- ⁸⁹ Physics Department, Lancaster University, Lancaster, UK
- ⁹⁰ Oliver Lodge Laboratory, University of Liverpool, Liverpool, UK
- ⁹¹ Department of Experimental Particle Physics, Jožef Stefan Institute and Department of Physics, University of Ljubljana, Ljubljana, Slovenia
- ⁹² School of Physics and Astronomy, Queen Mary University of London, London, UK
- ⁹³ Department of Physics, Royal Holloway University of London, Egham, UK
- ⁹⁴ Department of Physics and Astronomy, University College London, London, UK
- ⁹⁵ Louisiana Tech University, Ruston, LA, USA
- ⁹⁶ Fysiska institutionen, Lunds universitet, Lund, Sweden
- ⁹⁷ Centre de Calcul de l'Institut National de Physique Nucléaire et de Physique des Particules (IN2P3), Villeurbanne, France
- ⁹⁸ Departamento de Física Teórica C-15 and CIAFF, Universidad Autónoma de Madrid, Madrid, Spain
- ⁹⁹ Institut für Physik, Universität Mainz, Mainz, Germany
- ¹⁰⁰ School of Physics and Astronomy, University of Manchester, Manchester, UK
- ¹⁰¹ CPPM, Aix-Marseille Université, CNRS/IN2P3, Marseille, France
- ¹⁰² Department of Physics, University of Massachusetts, Amherst, MA, USA
- ¹⁰³ Department of Physics, McGill University, Montreal, QC, Canada
- ¹⁰⁴ School of Physics, University of Melbourne, Victoria, Australia
- ¹⁰⁵ Department of Physics, University of Michigan, Ann Arbor, MI, USA
- ¹⁰⁶ Department of Physics and Astronomy, Michigan State University, East Lansing, MI, USA
- ¹⁰⁷ B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus
- ¹⁰⁸ Research Institute for Nuclear Problems of Byelorussian State University, Minsk, Belarus
- ¹⁰⁹ Group of Particle Physics, University of Montreal, Montreal, QC, Canada
- ¹¹⁰ P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia
- ¹¹¹ National Research Nuclear University MEPhI, Moscow, Russia
- ¹¹² D.V. Skobeltsyn Institute of Nuclear Physics, M.V. Lomonosov Moscow State University, Moscow, Russia
- ¹¹³ Fakultät für Physik, Ludwig-Maximilians-Universität München, Munich, Germany
- ¹¹⁴ Max-Planck-Institut für Physik (Werner-Heisenberg-Institut), Munich, Germany
- ¹¹⁵ Nagasaki Institute of Applied Science, Nagasaki, Japan
- ¹¹⁶ Graduate School of Science and Kobayashi-Maskawa Institute, Nagoya University, Nagoya, Japan
- ¹¹⁷ Department of Physics and Astronomy, University of New Mexico, Albuquerque, NM, USA
- ¹¹⁸ Institute for Mathematics, Astrophysics and Particle Physics, Radboud University Nijmegen/Nikhef, Nijmegen, The Netherlands
- ¹¹⁹ Nikhef National Institute for Subatomic Physics and University of Amsterdam, Amsterdam, The Netherlands
- ¹²⁰ Department of Physics, Northern Illinois University, DeKalb, IL, USA
- ¹²¹ ^(a)Budker Institute of Nuclear Physics and NSU, SB RAS, Novosibirsk, Russia; ^(b)Novosibirsk State University Novosibirsk, Novosibirsk, Russia
- ¹²² Institute for High Energy Physics of the National Research Centre Kurchatov Institute, Protvino, Russia
- ¹²³ Institute for Theoretical and Experimental Physics named by A.I. Alikhanov of National Research Centre “Kurchatov Institute”, Moscow, Russia
- ¹²⁴ Department of Physics, New York University, New York, NY, USA
- ¹²⁵ Ochanomizu University, Otsuka, Bunkyo-ku, Tokyo, Japan
- ¹²⁶ Ohio State University, Columbus, OH, USA
- ¹²⁷ Faculty of Science, Okayama University, Okayama, Japan
- ¹²⁸ Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman, OK, USA
- ¹²⁹ Department of Physics, Oklahoma State University, Stillwater, OK, USA
- ¹³⁰ Palacký University, RCPTM, Joint Laboratory of Optics, Olomouc, Czech Republic
- ¹³¹ Center for High Energy Physics, University of Oregon, Eugene, OR, USA
- ¹³² LAL, Université Paris-Sud, CNRS/IN2P3, Université Paris-Saclay, Orsay, France
- ¹³³ Graduate School of Science, Osaka University, Osaka, Japan
- ¹³⁴ Department of Physics, University of Oslo, Oslo, Norway
- ¹³⁵ Department of Physics, Oxford University, Oxford, UK
- ¹³⁶ LPNHE, Sorbonne Université, Université de Paris, CNRS/IN2P3, Paris, France

- 137 Department of Physics, University of Pennsylvania, Philadelphia, PA, USA
- 138 Konstantinov Nuclear Physics Institute of National Research Centre “Kurchatov Institute”, PNPI, St. Petersburg, Russia
- 139 Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA, USA
- 140 (a) Laboratório de Instrumentação e Física Experimental de Partículas - LIP, Lisbon, Portugal; (b) Departamento de Física, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal; (c) Departamento de Física, Universidade de Coimbra, Coimbra, Portugal; (d) Centro de Física Nuclear da Universidade de Lisboa, Lisbon, Portugal; (e) Departamento de Física, Universidade do Minho, Braga, Portugal; (f) Departamento de Física Teórica y del Cosmos, Universidad de Granada, Granada, Spain; (g) Dep Física and CEFITEC of Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal; (h) Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal
- 141 Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic
- 142 Czech Technical University in Prague, Prague, Czech Republic
- 143 Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic
- 144 Particle Physics Department, Rutherford Appleton Laboratory, Didcot, UK
- 145 IRFU, CEA, Université Paris-Saclay, Gif-sur-Yvette, France
- 146 Santa Cruz Institute for Particle Physics, University of California Santa Cruz, Santa Cruz, CA, USA
- 147 (a) Departamento de Física, Pontificia Universidad Católica de Chile, Santiago, Chile; (b) Universidad Andres Bello, Department of Physics, Santiago, Chile; (c) Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile
- 148 Department of Physics, University of Washington, Seattle, WA, USA
- 149 Department of Physics and Astronomy, University of Sheffield, Sheffield, UK
- 150 Department of Physics, Shinshu University, Nagano, Japan
- 151 Department Physik, Universität Siegen, Siegen, Germany
- 152 Department of Physics, Simon Fraser University, Burnaby, BC, Canada
- 153 SLAC National Accelerator Laboratory, Stanford, CA, USA
- 154 Physics Department, Royal Institute of Technology, Stockholm, Sweden
- 155 Departments of Physics and Astronomy, Stony Brook University, Stony Brook, NY, USA
- 156 Department of Physics and Astronomy, University of Sussex, Brighton, UK
- 157 School of Physics, University of Sydney, Sydney, Australia
- 158 Institute of Physics, Academia Sinica, Taipei, Taiwan
- 159 (a) E. Andronikashvili Institute of Physics, Iv. Javakhishvili Tbilisi State University, Tbilisi, Georgia; (b) High Energy Physics Institute, Tbilisi State University, Tbilisi, Georgia
- 160 Department of Physics, Technion, Israel Institute of Technology, Haifa, Israel
- 161 Raymond and Beverly Sackler School of Physics and Astronomy, Tel Aviv University, Tel Aviv, Israel
- 162 Department of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece
- 163 International Center for Elementary Particle Physics and Department of Physics, University of Tokyo, Tokyo, Japan
- 164 Graduate School of Science and Technology, Tokyo Metropolitan University, Tokyo, Japan
- 165 Department of Physics, Tokyo Institute of Technology, Tokyo, Japan
- 166 Tomsk State University, Tomsk, Russia
- 167 Department of Physics, University of Toronto, Toronto, ON, Canada
- 168 (a) TRIUMF, Vancouver, BC, Canada; (b) Department of Physics and Astronomy, York University, Toronto, ON, Canada
- 169 Division of Physics and Tomonaga Center for the History of the Universe, Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan
- 170 Department of Physics and Astronomy, Tufts University, Medford, MA, USA
- 171 Department of Physics and Astronomy, University of California Irvine, Irvine, CA, USA
- 172 Department of Physics and Astronomy, University of Uppsala, Uppsala, Sweden
- 173 Department of Physics, University of Illinois, Urbana, IL, USA
- 174 Instituto de Física Corpuscular (IFIC), Centro Mixto Universidad de Valencia - CSIC, Valencia, Spain
- 175 Department of Physics, University of British Columbia, Vancouver, BC, Canada
- 176 Department of Physics and Astronomy, University of Victoria, Victoria, BC, Canada
- 177 Fakultät für Physik und Astronomie, Julius-Maximilians-Universität Würzburg, Würzburg, Germany
- 178 Department of Physics, University of Warwick, Coventry, UK
- 179 Waseda University, Tokyo, Japan
- 180 Department of Particle Physics, Weizmann Institute of Science, Rehovot, Israel

- ¹⁸¹ Department of Physics, University of Wisconsin, Madison, WI, USA
- ¹⁸² Fakultät für Mathematik und Naturwissenschaften, Fachgruppe Physik, Bergische Universität Wuppertal, Wuppertal, Germany
- ¹⁸³ Department of Physics, Yale University, New Haven, CT, USA
- ¹⁸⁴ Yerevan Physics Institute, Yerevan, Armenia
- ^a Also at Borough of Manhattan Community College, City University of New York, New York NY, USA
- ^b Also at CERN, Geneva, Switzerland
- ^c Also at CPPM, Aix-Marseille Université, CNRS/IN2P3, Marseille, France
- ^d Also at Département de Physique Nucléaire et Corpusculaire, Université de Genève, Geneva, Switzerland
- ^e Also at Departament de Física de la Universitat Autònoma de Barcelona, Barcelona, Spain
- ^f Also at Departamento de Física, Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal
- ^g Also at Department of Applied Physics and Astronomy, University of Sharjah, Sharjah, United Arab Emirates
- ^h Also at Department of Financial and Management Engineering, University of the Aegean, Chios, Greece
- ⁱ Also at Department of Physics and Astronomy, Michigan State University, East Lansing MI, USA
- ^j Also at Department of Physics and Astronomy, University of Louisville, Louisville, KY, USA
- ^k Also at Department of Physics, Ben Gurion University of the Negev, Beer Sheva, Israel
- ^l Also at Department of Physics, California State University, East Bay, USA
- ^m Also at Department of Physics, California State University, Fresno, USA
- ⁿ Also at Department of Physics, California State University, Sacramento, USA
- ^o Also at Department of Physics, King's College London, London, UK
- ^p Also at Department of Physics, St. Petersburg State Polytechnical University, St. Petersburg, Russia
- ^q Also at Department of Physics, Stanford University, Stanford CA, USA
- ^r Also at Department of Physics, University of Adelaide, Adelaide, Australia
- ^s Also at Department of Physics, University of Fribourg, Fribourg, Switzerland
- ^t Also at Department of Physics, University of Michigan, Ann Arbor MI, USA
- ^u Also at Dipartimento di Matematica, Informatica e Fisica, Università di Udine, Udine, Italy
- ^v Also at Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia
- ^w Also at Giresun University, Faculty of Engineering, Giresun, Turkey
- ^x Also at Graduate School of Science, Osaka University, Osaka, Japan
- ^y Also at Hellenic Open University, Patras, Greece
- ^z Also at Institutio Catalana de Recerca i Estudis Avancats, ICREA, Barcelona, Spain
- ^{aa} Also at Institut für Experimentalphysik, Universität Hamburg, Hamburg, Germany
- ^{ab} Also at Institute for Mathematics, Astrophysics and Particle Physics, Radboud University Nijmegen/Nikhef, Nijmegen, The Netherlands
- ^{ac} Also at Institute for Nuclear Research and Nuclear Energy (INRNE) of the Bulgarian Academy of Sciences, Sofia, Bulgaria
- ^{ad} Also at Institute for Particle and Nuclear Physics, Wigner Research Centre for Physics, Budapest, Hungary
- ^{ae} Also at Institute of Particle Physics (IPP), Vancouver, Canada
- ^{af} Also at Institute of Physics, Academia Sinica, Taipei, Taiwan
- ^{ag} Also at Institute of Physics, Azerbaijan Academy of Sciences, Baku, Azerbaijan
- ^{ah} Also at Institute of Theoretical Physics, Ilia State University, Tbilisi, Georgia
- ^{ai} Also at Instituto de Física Teórica, IFT-UAM/CSIC, Madrid, Spain
- ^{aj} Also at Joint Institute for Nuclear Research, Dubna, Russia
- ^{ak} Also at LAL, Université Paris-Sud, CNRS/IN2P3, Université Paris-Saclay, Orsay, France
- ^{al} Also at Louisiana Tech University, Ruston LA, USA
- ^{am} Also at LPNHE, Sorbonne Université, Université de Paris, CNRS/IN2P3, Paris, France
- ^{an} Also at Manhattan College, New York NY, USA
- ^{ao} Also at Moscow Institute of Physics and Technology State University, Dolgoprudny, Russia
- ^{ap} Also at National Research Nuclear University MEPhI, Moscow, Russia
- ^{aq} Also at Physics Department, An-Najah National University, Nablus, Palestine
- ^{ar} Also at Physics Dept, University of South Africa, Pretoria, South Africa
- ^{as} Also at Physikalisches Institut, Albert-Ludwigs-Universität Freiburg, Freiburg, Germany

^{at} Also at School of Physics, Sun Yat-sen University, Guangzhou, China

^{au} Also at The City College of New York, New York NY, USA

^{av} Also at The Collaborative Innovation Center of Quantum Matter (CICQM), Beijing, China

^{aw} Also at Tomsk State University, Tomsk, and Moscow Institute of Physics and Technology State University, Dolgoprudny, Russia

^{ax} Also at TRIUMF, Vancouver BC, Canada

^{ay} Also at Università di Napoli Parthenope, Naples, Italy

* Deceased