

The ATLAS Trigger/DAQ Authorlist, Version 5.0

R. Abreu¹⁹, R. Achenbach^{35a}, J. Adelman⁶⁴, G. Aielli^{81a,81b}, I.N. Aleksandrov³⁸, E. Alexandrov³⁸, J. Alison²⁰, B.M.M. Allbrooke⁹, A. Aloisio^{62a,62b}, F. Alonso⁴², B. Alvarez Gonzalez¹⁹, M.G. Alviggi^{62a,62b}, N. Amram⁹², L.S. Ancu³¹, N. Andari⁶⁴, C.F. Anders^{35b}, G. Anders¹⁹, J.T. Anderson², A. Andreani^{56a,56b}, A. Andreatta^{56a,56b}, V. Andrei^{35a}, X.S. Anduaga⁴², I. Angelozzi⁶³, N. Anjos⁴, A. Annovi^{75a,75b}, M. Antonelli³⁰, F. Anulli^{80a}, M. Aoki³⁹, I. Aracena⁸⁶, S. Artz⁴⁹, N. Asbah²⁷, M. Atkinson¹⁰⁰, J. Augusto^{77b}, G. Avolio¹⁹, A.E. Baas^{35a}, M. Backes¹⁹, E. Badescu^{16a}, J.T. Baines⁷⁹, S. Ballestrero^{87b}, H.S. Bansil⁹, E.L. Barberio⁵³, S.L. Barnes⁵⁰, B.M. Barnett⁷⁹, R. Bartoldus⁸⁶, B. Bauss⁴⁹, J.B. Beacham⁶⁸, R. Beccherle^{75a,75b}, H.P. Beck^{8,a}, C.P. Bee⁸⁹, M. Begel¹⁵, C. Belanger-Champagne⁵², W.H. Bell³¹, K. Bendtz^{88a,88b}, Y. Benhammou⁹², M. Beretta³⁰, D. Berge⁶³, E. Bergeaas Kuutmann¹⁰¹, C. Bernard¹², C. Bernius⁶⁷, H. Bertelsen²³, F. Bertolucci^{75a,75b}, N.V. Biesuz^{75a,75b}, M. Biglietti^{82a}, K.M. Black¹², R.E. Blair², G. Blazey⁶⁴, M. Bogdan²⁰, A.G. Bogdanchikov⁶⁵, C. Bohm^{88a}, V. Boisvert⁴⁵, T. Bold^{24a}, A. Borga⁶³, D. Boscherini^{11a}, M. Bosman⁴, H. Boterenbrood⁶³, A. Boveia¹⁹, J. Bracinik⁹, A. Brandt³, F. Brasolin^{11a}, I.P. Brawn⁷⁹, R. Brenner¹⁰¹, S. Bressler¹⁰⁵, T.M. Bristow²⁹, D. Britzger²⁷, R. Brock⁵⁴, W.K. Brooks^{21b}, E. Brost⁶⁹, A. Bruni^{11a}, P. Bryant²⁰, S.I. Buda^{16a}, B. Burghgrave⁶⁴, V. B`uscher⁴⁹, J.M. Butler¹², W. Buttinger¹⁵, G. Calderini⁴⁸, R. Camacho Toro²⁰, M. Campanelli⁴⁶, A. Camplani^{56a,56b}, M. Cano Bret^{22e}, T. Cao²⁶, M. Caprini^{16a}, R. Caputo⁴⁹, R. Cardarelli^{81a}, D. Casadei⁴⁶, M.P. Casado⁴, V. Cavaliere¹⁰⁰, V. Cavasinni^{75a,75b}, A. Cerri⁹⁰, L. Cerrito⁴⁴, D. Chakraborty⁶⁴, P. Chang¹⁰⁰, C.A. Chavez Barajas⁹⁰, S. Cheatham⁹¹, A. Chegwidden⁵⁴, H. Chen¹⁵, K. Chen¹⁵, Y. Chen⁴⁰, Y. Cheng²⁰, J.T. Childers², G. Chiodini^{43a}, R.T. Chislett⁴⁶, A. Chitan^{16a}, V. Christodoulou⁴⁶, G. Ciapetti^{80a,80b}, S. Citraro^{75a,75b}, M. Citterio^{56a}, T. Colombo^{35c}, P. Conde Mui~no^{77a,77b}, I.A. Connelly⁴⁵, A.C. Contescu^{16c}, F. Conventi^{62a,b}, B.D. Cooper⁴⁶, M. Corradi^{11a}, F. Corriveau^{52,c}, A. Corso-Radu⁹⁹, R. Coura Torres^{14a}, K. Cranmer⁶⁷, F. Crescioli⁴⁸, G.J. Crone⁴⁶, J. Cummings¹⁰⁸, M. D'ascanio¹⁹, M.J. Da Cunha Sargedas De Sousa^{77a,77b}, M. Dam²³, A.C. Daniells⁹, L. Danielsen¹⁹, O. Davignon⁴⁸, P. Davison⁴⁶, S. De Cecco⁴⁸, D. De Pedis^{80a}, A. De Santo⁹⁰, J. Degenhardt⁷³, I. Deigaard⁶³, L. Dell'Asta¹², M. Dell'Orso^{75a,75b}, M. Della Pietra^{62a,b}, S. Demers¹⁰⁸, P.O. Deviveiros¹⁹, S. Dhaliwal¹³, A. Di Ciaccio^{81a,81b}, A. Di Mattia⁹¹, M.A. Diaz^{21a}, J.I. Djuvsland^{35a}, S. Donati^{75a,75b}, M.T. Dova⁴², G. Drake², S. Dubrov⁶⁵, M. Dunford^{35a}, D. Edmunds⁵⁴, E. Eisenhandler⁴⁴, N. Ellis¹⁹, D. Emelianov⁷⁹, I. Ermoline⁵⁴, E. Etzion⁹², H. Evans³⁷, S. Falciano^{80a}, S. Farrell⁶, S.M. Farrington¹⁰³, P. Farthouat¹⁹, P.J.W. Faulkner⁹, D. Fazio¹⁹, W. Fedorko¹⁰², R. Ferrari^{72a}, A. Ferretto Parodi^{32a,32b}, W.C. Fisher⁵⁴, D. Francis¹⁹, M. Frate⁹⁹, S. Fratina⁷³, S.T. French¹⁸, S.M. Fressard-Batraneanu¹⁹, D.M. Front¹⁰⁵, C. Fukunaga⁹⁵, T. Fusayasu⁶⁰, S. Gadomski³¹, G. Galster²³, N. Garelli⁸⁶, M. Gatta³⁰, C.N.P. Gee⁷⁹, C. Gentsos⁹³, S. George⁴⁵, D. Gerbaudo⁹⁹, M. Ghibaudi¹⁹, S. Giagu^{80a,80b}, P. Giannetti^{75a,75b}, R. Giordano^{62a,62b}, F.M. Giorgi⁷, M. Giulini^{35b}, S. Gkaitatzis⁹³, J. Glatzer¹⁹, R. Goncalo^{77a}, M.L. Gonzalez Silva¹⁷, B. Gorini¹⁹, E. Gorini^{43a,43b}, I. Grabowska-Bold^{24a}, J. Gramling³¹, B. Green⁴⁵, Z.D. Greenwood^{47,d}, K. Gregersen⁴⁶, G.C. Grossi⁴⁷, Z.J. Grout⁹⁰, A. Haas⁶⁷, S. Haas¹⁹, D.R. Hadley⁹, P. Hanke^{35a}, P.F. Harrison¹⁰³, M. Hasegawa⁴⁰, S. Hasegawa⁶¹, Y. Hasegawa⁸⁴, R. Hauser⁵⁴, S.J. Head⁹, S. Heim⁷³, L. Helary¹², S. Hellman^{88a,88b}, A.M. Henriques Correia¹⁹, R. Herrberg-Schubert⁷, J.W. Hetherly²⁶, K. Higuchi⁹⁶, S.J. Hillier⁹, S. Hirayama⁹⁴, N. Hod⁶³, D. Hoffmann⁵¹, T.M. Hong⁷⁶,

L. Hooft van Huysduynen⁶⁷, J. Howarth²⁷, I. Hristova⁷, J. Huston⁵⁴, O. Igonkina⁶³, T. Iizawa¹⁰⁴, M. Ikeno³⁹, N. Ilic⁸⁶, V. Ippolito³⁴, M. Ishino⁴¹, M. Ishitsuka⁹⁶, H. Iwasaki³⁹, V. Izzo^{62a}, K.B. Jakobi⁴⁹, D.K. Jana⁴⁷, G.E. Jerezcek¹⁹, C. Jeske¹⁰³, W. Ji⁴⁹, Z. Jiang⁸⁶, C.A. Johnson³⁷, G. Jones¹⁰³, J. Jongmanns^{35a}, M. Joos¹⁹, C. Kahra⁴⁹, E. Kajomovitz²⁸, A. Kaluza⁴⁹, S. Kama²⁶, N. Kanaya⁹⁴, M. Kaneda¹⁹, F. Kanega⁹⁴, T. Kanno⁹⁶, A. Kapliy²⁰, A. Karamaoun¹, K. Karthik⁶⁷, G. Kasieczka^{35b}, A. Katre³¹, Y. Kawaguchi¹⁰⁴, A. Kazarov⁷⁴, R. Kehoe²⁶, J.J. Kempster⁴⁵, K. Kessoku⁹⁴, R.A. Keyes⁵², Y. Kim²⁰, N. Kimura⁹³, J. Kirk⁷⁹, T. Klimkovich^{35b}, E.-E. Kluge^{35a}, D. Kobayashi⁹⁶, T. Kobayashi⁹⁴, M. Kolb^{35b}, J. Koll⁵⁴, S. Kolos⁹⁹, T. Kono^{39,e}, R. Konoplich^{67,f}, N. Konstantinidis⁴⁶, G. Korcyl^{24b}, K. Korcyl²⁵, K. Kordas⁹³, T. Korikawa¹⁰⁴, A.A. Korol^{65,g}, V.M. Kotov³⁸, V. Kouskoura¹⁵, A. Krasznahorkay¹⁹, S. Kreiss⁶⁷, K. Krizka²⁰, T. Kubota⁵³, A. Kugel^{35c}, T. Kunigo⁴¹, J. Kunkle⁷³, H. Kurashige⁴⁰, M. Kuze⁹⁶, B. Laforge⁴⁸, L. Lambourne⁴⁶, S. Lammers³⁷, M.P.J. Landon⁴⁴, V.S. Lang^{35a}, A.J. Lankford⁹⁹, F. Lanni¹⁵, A. Lanza^{72a}, A. Lerner⁷¹, F. Lasagni Manghi^{11a,11b}, P. Laurens⁵⁴, C.J. Lee^{87b}, G. Lehmann Miotto¹⁹, A. Leisos^{93,h}, D. Lellouch¹⁰⁵, K.J.C. Leney⁴⁶, C. Leonidopoulos²⁹, L.J. Levinson¹⁰⁵, G.H. Lewis⁶⁷, H.L. Li²⁰, V. Liberali^{56a,56b}, R.A. Linck³⁷, J.T. Linnemann⁵⁴, E. Lipeles⁷³, M. Lisovyi^{35b}, L. Liu¹⁰⁰, T. Lohse⁷, B.A. Long¹², L. Lopes^{77a}, M. Losada⁹⁸, K.F. Loureiro⁹⁸, J. Love², C. Luci^{80a,80b}, P. Luciano^{75a,75b}, C. Luongo^{75a,75b}, N. Lupu⁹¹, J. Machado Miguens^{73,77b}, J. Maeda⁴⁰, D. Magalotti³⁰, L. Magnoni⁹⁹, J. Mahlstedt⁶³, I.M. Maniatis⁹³, A. Mann⁵⁸, R. Mantifel⁵², L. Mapelli¹⁹, B. Martin¹⁹, T.A. Martin¹⁰³, V.J. Martin²⁹, S. Martin-Haugh⁷⁹, V.S. Martoiu^{16a}, A.C. Martyniuk⁴⁶, A. Marzin¹⁹, J. Masik⁵⁰, L. Massa^{11a,11b}, I. Maznas⁹³, M. Medinnis²⁷, C. Meessen⁵¹, K. Meier^{35a}, C. Melachrinou²⁰, N. Melnikova⁶⁵, L. Mendoza Navas⁹⁸, P. Mermod³¹, C. Meroni^{56a}, A.S. Mete⁹⁹, C. Meyer⁴⁹, R.P. Middleton⁷⁹, G. Mikenberg¹⁰⁵, D.W. Miller²⁰, C. Mills²⁹, A.I. Mincer⁶⁷, M. Mineev³⁸, L.M. Mir⁴, T. Mitani¹⁰⁴, F. Monticelli⁴², R.W. Moore¹, P. Morettini^{32a}, S. Moritz⁴⁹, J.D. Morris⁴⁴, R.D. Mudd⁹, F. Mueller⁵⁹, T.A. Müller⁵⁸, Y. Munwes⁹², E. Musto⁹¹, K. Nagano³⁹, Y. Nagasaka³⁶, Y. Nakahama¹⁹, R. Narayan²⁰, G. Navarro⁹⁸, T.J. Neep⁵⁰, A. Negri^{72a,72b}, P. Nemethy⁶⁷, P. Neroutsos⁹³, M.S. Neubauer¹⁰⁰, P.R. Newman⁹, A. Nikiforov⁷, S. Nikolaidis⁹³, A. Nisati^{80a}, T. Nobe⁹⁴, H. Nomoto⁹⁴, E. Nurse⁴⁶, E. Obrestad¹⁹, A. Ochi⁴⁰, A. Oh⁵⁰, C.C. Ohm⁶, H. Ohshita⁸⁴, H. Okawa⁹⁷, Y. Okumura²⁰, S.A. Olivares Pino²⁹, D. Oliveira Damazio¹⁵, D. Olivito⁷³, B. Osculati^{32a,32b}, R. Ospanov⁵⁰, M. Owen³³, V.E. Ozcan^{10a}, C. Padilla Aranda⁴, M. Palka^{24b}, C.E. Pandini⁴⁸, J.G. Panduro Vazquez⁴⁵, B. Panes^{21a}, L. Papaevgeniou¹⁹, A. Paramonov², F. Parodi^{32a,32b}, E. Pasqualucci^{80a}, Fr. Pastore⁴⁵, T. Pauly¹⁹, B. Penning²⁰, S. Perrella^{62a,62b}, B.A. Petersen¹⁹, C. Petridou⁹³, E. Petrolu^{80a}, E. Pianori¹⁰³, R. Piegaia¹⁷, M. Piendibene^{75a,75b}, A.D. Pilkington⁵⁰, A. Pinder⁷¹, P. Plucinski^{88a,88b}, R. Poettgen^{88a,88b}, A. Polini^{11a}, B.G. Pope⁵⁴, C.J. Potter⁹⁰, C.T. Potter⁶⁹, M.E. Pozo Astigarraga¹⁹, M. Primavera^{43a}, S. Prince⁵², J. Proudfoot², W. Qian⁷⁹, F. Quinonez^{21a}, P. Radloff⁶⁹, P. Rados⁵³, S. Rajagopalan¹⁵, M. Rammensee¹⁹, K. Rao⁹⁹, S. Rave⁴⁹, A. Reiss⁴⁹, M. Rescigno^{80a}, L. Rinaldi^{11a}, I. Riu⁴, S.H. Robertson^{52,c}, C. Roda^{75a,75b}, M. Romano^{11a,11b}, G. Romeo¹⁷, D. Romero Maltrana^{21a}, E. Rossi^{62a,62b}, E. Rossi^{75a,75b}, F. Rubbo⁸⁶, A. Ruiz-Martinez¹⁹, Y.F. Ryabov⁷⁴, S. Ryu², F. Safai Tehrani^{80a}, H. Sakamoto⁹⁴, Y. Sakurai¹⁰⁴, G. Salamanna^{82a,82b}, A. Salamon^{81a}, A. Salmikov⁸⁶, F. Salvatore⁹⁰, D. Sampsonidis⁹³, D. Sampsonidou⁹³, R.L. Sandbach⁴⁴, C. Sandoval⁹⁸, D.P.C. Sankey⁷⁹, R. Santonico^{81a,81b}, I. Santoyo Castillo⁹⁰, E. Sarkisyan-Grinbaum³, O. Sasaki³⁹, G. Savage⁴⁵, L. Sawyer^{47,d}, J. Saxon²⁰, D.A. Scannicchio⁹⁹, D. Schaefer¹⁹, J. Schaeffer⁴⁹, U. Schaefer⁴⁹, V. Scharf^{35a}, D. Scheirich⁷⁸, C. Schiavi^{32a,32b}, K. Schmieden¹⁹,

K. Schmitt^{35a}, S. Schmitt^{35b}, S. Schmitt²⁷, A. Schoening^{35b}, F.P. Schreuder⁶³, H.-C. Schultz-Coulon^{35a}, J. Schumacher¹⁹, R. Schwienhorst⁵⁴, J.M. Seixas^{14a}, S.J. Sekula²⁶, A. Sfyrla¹⁹, M. Shamim⁶⁹, S.M. Shaw⁵⁰, C.Y. Shehu⁹⁰, C.O. Shimmin⁹⁹, M. Shimojima⁶⁰, M.J. Shochet²⁰, S. Shojaii^{56a,56b}, D. Shooltz⁵⁴, O. Sidiropoulou¹⁰⁷, A. Sidoti^{11a,11b}, S.B. Silverstein^{88a}, E. Simioni⁴⁹, M. Simon⁴⁹, N.B. Sinev⁶⁹, S.Yu. Sivoklov⁵⁷, M.J. Siyad⁷⁹, J. Sjölin^{88a,88b}, K. Slagle⁹⁹, B.H. Smart²⁹, B.C. Smith³⁴, G. Snidero⁴⁴, A. Soffer⁹², C.A. Solans¹⁹, I. Soloviev⁹⁹, V. Sorin⁴, C.L. Sotiropoulou^{75a,75b}, S. Spagnolo^{43a,43b}, R. Spiwoks¹⁹, A. Stabile^{56a}, R.J. Staley⁹, R. Stamen^{35a}, G.H. Stark²⁰, H.J. Stelzer¹⁹, M.C. Stockton⁵², M. Stoebe⁵², E. Strauss⁸⁶, D.M. Strom⁶⁹, P. Strzempek^{24b}, D. Su⁸⁶, HS. Subramania¹, Y. Sugaya⁷⁰, T. Sumida⁴¹, M.R. Sutton⁹⁰, Y. Suzuki³⁹, A. Taffard⁹⁹, S. Taghavirad⁷⁹, N. Taiblum⁹², Y. Takahashi⁶¹, H. Takai¹⁵, T. Takeshita⁸⁴, C.L. Tan⁹, S. Tanaka³⁹, S. Tang¹⁵, S. Tapprogge⁴⁹, S. Tarem⁹¹, T. Tashiro⁴¹, A. Tavares Delgado^{77a,77b}, P. Teixeira-Dias⁴⁵, M. Testa³⁰, J.P. Thomas⁹, J. Thomas-Wilsker⁴⁵, P.D. Thompson⁹, M. Thomson¹⁸, K. Tokushuku³⁹, K. Tollefson⁵⁴, M. Tomoto⁶¹, L. Tompkins^{86,i}, E. Torrence⁶⁹, H. Torres⁸⁵, F. Touchard⁵¹, L. Tremblet¹⁹, A. Tricoli¹⁹, M.F. Tripiana⁴, P. True⁵⁴, S. Tsuno³⁹, S.A. Tupputi^{11a,11b}, M.S. Twomey⁸³, G. Unel⁹⁹, P. Urrejola⁴⁹, G. Usai³, B. Vachon⁵², S. Vallecorsa³¹, P.C. Van Der Deijl⁶³, R. Van Kooten³⁷, W. Vandelli¹⁹, R. Vari^{80a}, S. Veneziano^{80a}, A. Ventura^{43a,43b}, V. Vercesi^{72a}, J.C. Vermeulen⁶³, M. Villa^{11a,11b}, A. Vogel⁴⁹, G. Volpi^{75a,75b}, J. Wakabayashi⁶¹, K. Wang⁵², R. Wang², A. Warburton⁵², D.R. Wardrope⁴⁶, M. Warren⁴⁶, A. Washbrook²⁹, R. Watari¹⁰⁴, P.M. Watkins⁹, A.T. Watson⁹, M.F. Watson⁹, J.S. Webster²⁰, T. Wengler¹⁹, P. Werner¹⁹, M. Wessels^{35a}, K. Whalen⁶⁹, R. White^{21b}, D. Whiteson⁹⁹, F.J. Wickens⁷⁹, W. Wiedenmann¹⁰⁶, M. Wielers⁷⁹, C. Wiglesworth²³, H.G. Wilkens¹⁹, C. Willis⁵⁴, F. Winklmeier⁶⁹, M. Wobisch^{47,d}, S.L. Wu¹⁰⁶, X. Wu³¹, B.M. Wynne²⁹, S. Xella²³, I. Xiotidis⁹³, R. Yakabe⁴⁰, K. Yamauchi⁶¹, Y. Yamazaki⁴⁰, Y. Yasu³⁹, K. Yorita¹⁰⁴, L. Yuan⁴⁰, A. Yurkewicz⁶⁴, L. Zanello^{80a,80b}, J.C. Zeng¹⁰⁰, H. Zhang⁵⁴, J. Zhang², N. Zhou⁹⁹, M. Zinser⁴⁹, G. Zoernig¹⁰⁶, R. Zou²⁰, M. zur Nedden⁷.

¹ Department of Physics, University of Alberta, Edmonton AB, Canada

² High Energy Physics Division, Argonne National Laboratory, Argonne IL, United States of America

³ Department of Physics, The University of Texas at Arlington, Arlington TX, United States of America

⁴ Institut de Física d'Altes Energies and Departament de Física de la Universitat Autònoma de Barcelona, Barcelona, Spain

⁵ (a) Department of Physics, Ankara University, Ankara; (c) Istanbul Aydin University, Istanbul; (d) Division of Physics, TOBB University of Economics and Technology, Ankara, Turkey

⁶ Physics Division, Lawrence Berkeley National Laboratory and University of California, Berkeley CA, United States of America

⁷ Department of Physics, Humboldt University, Berlin, Germany

⁸ Albert Einstein Center for Fundamental Physics and Laboratory for High Energy Physics, University of Bern, Bern, Switzerland

⁹ School of Physics and Astronomy, University of Birmingham, Birmingham, United Kingdom

¹⁰ (a) Department of Physics, Bogazici University, Istanbul; (b) Department of Physics, Dogus University, Istanbul; (c) Department of Physics Engineering, Gaziantep University,

Gaziantep, Turkey

¹¹ (a) INFN Sezione di Bologna; (b) Dipartimento di Fisica e Astronomia, Università di Bologna, Bologna, Italy

¹² Department of Physics, Boston University, Boston MA, United States of America

¹³ Department of Physics, Brandeis University, Waltham MA, United States of America

¹⁴ (a) Universidade Federal do Rio De Janeiro COPPE/EE/IF, Rio de Janeiro; (b) Electrical Circuits Department, Federal University of Juiz de Fora (UFJF), Juiz de Fora; (c) Federal University of Sao Joao del Rei (UFSJ), Sao Joao del Rei; (d) Instituto de Fisica, Universidade de Sao Paulo, Sao Paulo, Brazil

¹⁵ Physics Department, Brookhaven National Laboratory, Upton NY, United States of America

¹⁶ (a) National Institute of Physics and Nuclear Engineering, Bucharest; (b) National Institute for Research and Development of Isotopic and Molecular Technologies, Physics Department, Cluj Napoca; (c) University Politehnica Bucharest, Bucharest; (d) West University in Timisoara, Timisoara, Romania

¹⁷ Departamento de Física, Universidad de Buenos Aires, Buenos Aires, Argentina

¹⁸ Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom

¹⁹ CERN, Geneva, Switzerland

²⁰ Enrico Fermi Institute, University of Chicago, Chicago IL, United States of America

²¹ (a) Departamento de Física, Pontificia Universidad Católica de Chile, Santiago; (b)

Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile

²² (a) Institute of High Energy Physics, Chinese Academy of Sciences, Beijing; (b)

Department of Modern Physics, University of Science and Technology of China, Anhui; (c)

Department of Physics, Nanjing University, Jiangsu; (d) School of Physics, Shandong

University, Shandong; (e) Department of Physics and Astronomy, Shanghai Key Laboratory for Particle Physics and Cosmology, Shanghai Jiao Tong University, Shanghai; (f) Physics Department, Tsinghua University, Beijing 100084, China

²³ Niels Bohr Institute, University of Copenhagen, Kobenhavn, Denmark

²⁴ (a) AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow; (b) Marian Smoluchowski Institute of Physics, Jagiellonian University, Krakow, Poland

²⁵ Institute of Nuclear Physics Polish Academy of Sciences, Krakow, Poland

²⁶ Physics Department, Southern Methodist University, Dallas TX, United States of America

²⁷ DESY, Hamburg and Zeuthen, Germany

²⁸ Department of Physics, Duke University, Durham NC, United States of America

²⁹ SUPA - School of Physics and Astronomy, University of Edinburgh, Edinburgh, United Kingdom

³⁰ INFN Laboratori Nazionali di Frascati, Frascati, Italy

³¹ Section de Physique, Université de Genève, Geneva, Switzerland

³² (a) INFN Sezione di Genova; (b) Dipartimento di Fisica, Università di Genova, Genova, Italy

³³ SUPA - School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom

³⁴ Laboratory for Particle Physics and Cosmology, Harvard University, Cambridge MA, United States of America

³⁵ (a) Kirchhoff-Institut für Physik, Ruprecht-Karls-Universität Heidelberg, Heidelberg; (b)

Physikalisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg; ^(c) ZITI Institut für technische Informatik, Ruprecht-Karls-Universität Heidelberg, Mannheim, Germany

³⁶ Faculty of Applied Information Science, Hiroshima Institute of Technology, Hiroshima, Japan

³⁷ Department of Physics, Indiana University, Bloomington IN, United States of America

³⁸ Joint Institute for Nuclear Research, JINR Dubna, Dubna, Russia

³⁹ KEK, High Energy Accelerator Research Organization, Tsukuba, Japan

⁴⁰ Graduate School of Science, Kobe University, Kobe, Japan

⁴¹ Faculty of Science, Kyoto University, Kyoto, Japan

⁴² Instituto de Física La Plata, Universidad Nacional de La Plata and CONICET, La Plata, Argentina

⁴³ ^(a) INFN Sezione di Lecce; ^(b) Dipartimento di Matematica e Fisica, Università del Salento, Lecce, Italy

⁴⁴ School of Physics and Astronomy, Queen Mary University of London, London, United Kingdom

⁴⁵ Department of Physics, Royal Holloway University of London, Surrey, United Kingdom

⁴⁶ Department of Physics and Astronomy, University College London, London, United Kingdom

⁴⁷ Louisiana Tech University, Ruston LA, United States of America

⁴⁸ Laboratoire de Physique Nucléaire et de Hautes Energies, UPMC and Université Paris-Diderot and CNRS/IN2P3, Paris, France

⁴⁹ Institut für Physik, Universität Mainz, Mainz, Germany

⁵⁰ School of Physics and Astronomy, University of Manchester, Manchester, United Kingdom

⁵¹ CPPM, Aix-Marseille Université and CNRS/IN2P3, Marseille, France

⁵² Department of Physics, McGill University, Montreal QC, Canada

⁵³ School of Physics, University of Melbourne, Victoria, Australia

⁵⁴ Department of Physics and Astronomy, Michigan State University, East Lansing MI, United States of America

⁵⁵ ^(a) E. Andronikashvili Institute of Physics, Iv. Javakhishvili Tbilisi State University, Tbilisi; ^(b) High Energy Physics Institute, Tbilisi State University, Tbilisi, Georgia

⁵⁶ ^(a) INFN Sezione di Milano; ^(b) Dipartimento di Fisica, Università di Milano, Milano, Italy

⁵⁷ D.V. Skobeltsyn Institute of Nuclear Physics, M.V. Lomonosov Moscow State University, Moscow, Russia

⁵⁸ Fakultät für Physik, Ludwig-Maximilians-Universität München, München, Germany

⁵⁹ Max-Planck-Institut für Physik (Werner-Heisenberg-Institut), München, Germany

⁶⁰ Nagasaki Institute of Applied Science, Nagasaki, Japan

⁶¹ Graduate School of Science and Kobayashi-Maskawa Institute, Nagoya University, Nagoya, Japan

⁶² ^(a) INFN Sezione di Napoli; ^(b) Dipartimento di Fisica, Università di Napoli, Napoli, Italy

⁶³ Nikhef National Institute for Subatomic Physics and University of Amsterdam, Amsterdam, Netherlands

⁶⁴ Department of Physics, Northern Illinois University, DeKalb IL, United States of America

⁶⁵ Budker Institute of Nuclear Physics, SB RAS, Novosibirsk, Russia

⁶⁶ ^(a) Department of Physics, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong; ^(b) Department of Physics, The University of Hong Kong, Hong Kong; ^(c) Department of Physics, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, China

- ⁶⁷ Department of Physics, New York University, New York NY, United States of America
⁶⁸ Ohio State University, Columbus OH, United States of America
⁶⁹ Center for High Energy Physics, University of Oregon, Eugene OR, United States of America
⁷⁰ Graduate School of Science, Osaka University, Osaka, Japan
⁷¹ Department of Physics, Oxford University, Oxford, United Kingdom
⁷² ^(a) INFN Sezione di Pavia; ^(b) Dipartimento di Fisica, Università di Pavia, Pavia, Italy
⁷³ Department of Physics, University of Pennsylvania, Philadelphia PA, United States of America
⁷⁴ National Research Centre "Kurchatov Institute" B.P.Konstantinov Petersburg Nuclear Physics Institute, St. Petersburg, Russia
⁷⁵ ^(a) INFN Sezione di Pisa; ^(b) Dipartimento di Fisica E. Fermi, Università di Pisa, Pisa, Italy
⁷⁶ Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh PA, United States of America
⁷⁷ ^(a) Laboratorio de Instrumentacao e Fisica Experimental de Particulas - LIP, Lisboa; ^(b) Faculdade de Ciências, Universidade de Lisboa, Lisboa; ^(c) Department of Physics, University of Coimbra, Coimbra; ^(d) Centro de Física Nuclear da Universidade de Lisboa, Lisboa; ^(e) Departamento de Física, Universidade do Minho, Braga; ^(f) Departamento de Física Teórica y del Cosmos and CAFPE, Universidad de Granada, Granada (Spain); ^(g) Dep Física and CEFITEC of Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal
⁷⁸ Faculty of Mathematics and Physics, Charles University in Prague, Praha, Czech Republic
⁷⁹ Particle Physics Department, Rutherford Appleton Laboratory, Didcot, United Kingdom
⁸⁰ ^(a) INFN Sezione di Roma; ^(b) Dipartimento di Fisica, Sapienza Università di Roma, Roma, Italy
⁸¹ ^(a) INFN Sezione di Roma Tor Vergata; ^(b) Dipartimento di Fisica, Università di Roma Tor Vergata, Roma, Italy
⁸² ^(a) INFN Sezione di Roma Tre; ^(b) Dipartimento di Matematica e Fisica, Università Roma Tre, Roma, Italy
⁸³ Department of Physics, University of Washington, Seattle WA, United States of America
⁸⁴ Department of Physics, Shinshu University, Nagano, Japan
⁸⁵ Department of Physics, Simon Fraser University, Burnaby BC, Canada
⁸⁶ SLAC National Accelerator Laboratory, Stanford CA, United States of America
⁸⁷ ^(a) Department of Physics, University of Cape Town, Cape Town; ^(b) Department of Physics, University of Johannesburg, Johannesburg; ^(c) School of Physics, University of the Witwatersrand, Johannesburg, South Africa
⁸⁸ ^(a) Department of Physics, Stockholm University; ^(b) The Oskar Klein Centre, Stockholm, Sweden
⁸⁹ Departments of Physics & Astronomy and Chemistry, Stony Brook University, Stony Brook NY, United States of America
⁹⁰ Department of Physics and Astronomy, University of Sussex, Brighton, United Kingdom
⁹¹ Department of Physics, Technion: Israel Institute of Technology, Haifa, Israel
⁹² Raymond and Beverly Sackler School of Physics and Astronomy, Tel Aviv University, Tel Aviv, Israel
⁹³ Department of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece

- ⁹⁴ International Center for Elementary Particle Physics and Department of Physics, The University of Tokyo, Tokyo, Japan
- ⁹⁵ Graduate School of Science and Technology, Tokyo Metropolitan University, Tokyo, Japan
- ⁹⁶ Department of Physics, Tokyo Institute of Technology, Tokyo, Japan
- ⁹⁷ Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan
- ⁹⁸ Centro de Investigaciones, Universidad Antonio Narino, Bogota, Colombia
- ⁹⁹ Department of Physics and Astronomy, University of California Irvine, Irvine CA, United States of America
- ¹⁰⁰ Department of Physics, University of Illinois, Urbana IL, United States of America
- ¹⁰¹ Department of Physics and Astronomy, University of Uppsala, Uppsala, Sweden
- ¹⁰² Department of Physics, University of British Columbia, Vancouver BC, Canada
- ¹⁰³ Department of Physics, University of Warwick, Coventry, United Kingdom
- ¹⁰⁴ Waseda University, Tokyo, Japan
- ¹⁰⁵ Department of Particle Physics, The Weizmann Institute of Science, Rehovot, Israel
- ¹⁰⁶ Department of Physics, University of Wisconsin, Madison WI, United States of America
- ¹⁰⁷ Fakultät für Physik und Astronomie, Julius-Maximilians-Universität, Würzburg, Germany
- ¹⁰⁸ Department of Physics, Yale University, New Haven CT, United States of America
- ¹⁰⁹ ^(a) Faculté des Sciences Ain Chock, Réseau Universitaire de Physique des Hautes Energies - Université Hassan II, Casablanca; ^(b) Centre National de l'Energie des Sciences Techniques Nucleaires, Rabat; ^(c) Faculté des Sciences Semlalia, Université Cadi Ayyad, LPHEA-Marrakech; ^(d) Faculté des Sciences, Université Mohamed Premier and LPTPM, Oujda; ^(e) Faculté des sciences, Université Mohammed V-Agdal, Rabat, Morocco
- ¹¹⁰ ^(a) Faculty of Mathematics, Physics & Informatics, Comenius University, Bratislava; ^(b) Department of Subnuclear Physics, Institute of Experimental Physics of the Slovak Academy of Sciences, Kosice, Slovak Republic
- ¹¹¹ ^(a) TRIUMF, Vancouver BC; ^(b) Department of Physics and Astronomy, York University, Toronto ON, Canada
- ¹¹² ^(a) INFN Gruppo Collegato di Udine, Sezione di Trieste, Udine; ^(b) ICTP, Trieste; ^(c) Dipartimento di Chimica, Fisica e Ambiente, Università di Udine, Udine
- ^a Also at Department of Physics, University of Fribourg, Fribourg, Switzerland
- ^b Also at Università di Napoli Parthenope, Napoli, Italy
- ^c Also at Institute of Particle Physics (IPP), Canada
- ^d Also at Louisiana Tech University, Ruston LA, United States of America
- ^e Also at O Chadai Academic Production, Ochanomizu University, Tokyo, Japan
- ^f Also at Manhattan College, New York NY, United States of America
- ^g Also at Novosibirsk State University, Novosibirsk, Russia
- ^h Also at Hellenic Open University, Patras, Greece
- ⁱ Also at Department of Physics, Stanford University, Stanford CA, United States of America
- * Deceased