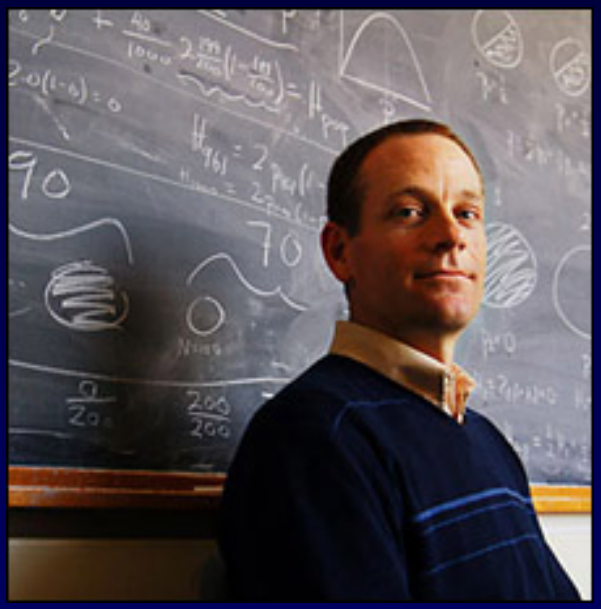
Authorship, Publication, and Peer Review…

Harvard Course in Responsible Conduct of Research

Wednesday, August 10, 2016



Prof. John Wakeley, OEB

Dr. Logan McCarty, Physics and CCB

M. William Lensch, Ph.D.

Executive Director,
Dept. of Stem Cell and Regenerative Biology
Harvard University

HSCRB
harvard department of stem cell & regenerative biology

Financial Disclosures, Conflicts

None to report

Any comments relating to companies and/or commercial ventures are meant to illustrate points only and neither endorse nor criticize their products, services, hopes, illusions, inner yearnings, psychoses, and/or aspirations.

Outline

- Considerations on authorship…
- What is peer review and why does it keep following me?
  - Manuscripts under consideration
  - Funding applications
  - Letters of assessment (*i.e.* rec letters)
- Can we make peer review *better*?
- Wild and reckless speculation…

Thoughts on ***why*** this stuff matters…

We invest ourselves in our work…

"This is the greater danger for our species, to try to pretend that we are another kind of animal, that we do not need to satisfy our curiosity, exploration, and experimentation, and that the human mind can rise above its ignorance by simply asserting that there are things it has no need to know."

– Dr. Lewis Thomas

***New England Journal of Medicine* 296 (1977): 328.**

Unreliable research

Trouble at the lab

Scientists like to think of science as self-correcting. To an alarming degree, it is not

Oct 19th 2013 | From the print edition

"I SEE a train wreck looming," warned Daniel Kahneman, an eminent psychologist, in an open letter last year. The premonition concerned research on a phenomenon known as "priming". Priming studies suggest that decisions can be influenced by apparently irrelevant actions or events that took place just before the cusp of choice. They have been a boom area in psychology over the past decade, and some of their insights have already made it out of the lab and into the toolkits of policy wonks keen on "nudging" the populace.

(Ir)reproducibility

CORRESPONDENCE
NATURE REVIEWS | DRUG DISCOVERY
www.nature.com/reviews/drugdisc

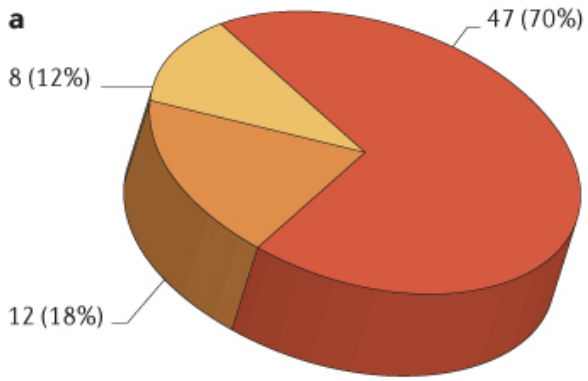
Bayer HealthCare, 2011

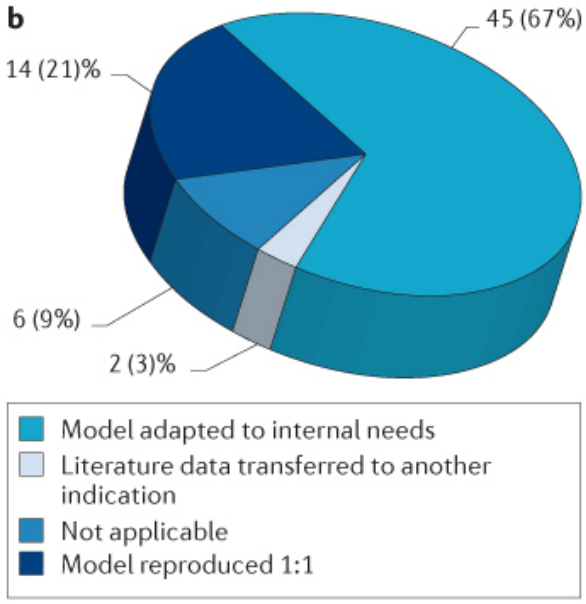
Believe it or not: how much can we rely on published data on potential drug targets?

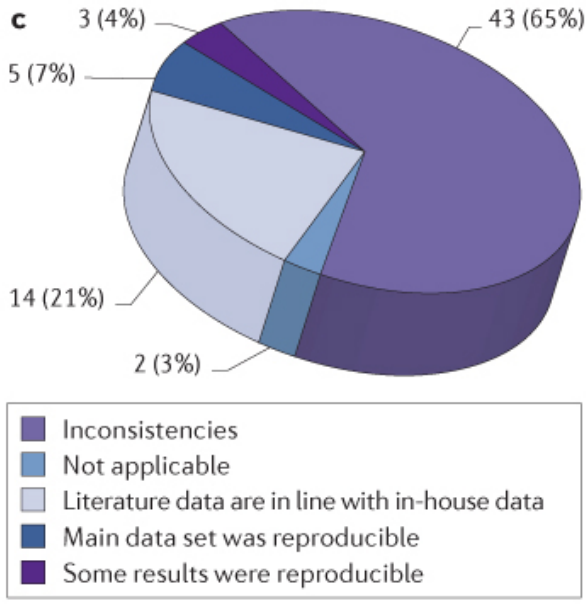
Florian Prinz, Thomas Schlange and Khusru As

20-25% of 67 projects could be reproduced

Reproducibility advances the field…







Ethics and Philosophy

Is science held to a unique moral standard?


Jan Hendrik Schön

Some retracted papers (on semiconductors)

J. H. Schön, et al., *Science* 287, 1022 (2000)
J. H. Schön, et al., *Science* 288, 656 (2000)
J. H. Schön, et al., *Science* 288, 2338 (2000)
J. H. Schön, et al., *Science* 289, 599 (2000)
J. H. Schön, et al., *Science* 290, 963 (2000)
J. H. Schön, et al., *Science* 292, 252 (2001)
J. H. Schön, et al., *Science* 293, 2432 (2001)
J. H. Schön, et al., *Science* 294, 2138 (2001)
Schön, J. H. et al. *Nature* 408, 549-552 (2000).
Schön, J. H. et al. *Nature* 410, 189- 192 (2001).
Schön, J. H. et al. *Nature* 413, 713-716 (2001).
Schön, J. H. et al. *Nature* 413, 831-833 (2001).
Schön, J. H. et al. *Nature* 414, 434-436 (2001).

Science is supposed to be about the search for truth. Thus, scientific fraud seems more reprehensible than when it occurs in other sectors.

Cell Stem Cell
@CellStemCell

Following

A small but important change to our author guidelines (see highlighted sentence) #publishing #figures

Philadelphia, PA

We should hold ourselves to high standards…

Data Processing Policy

Authors should make every attempt to reduce the amount of postacquisition processing of data. Some degree of processing may be unavoidable in certain instances and is permitted provided that the final data accurately reflect that of the original. In the case of image processing, alterations must be applied to the entire image (e.g., brightness, contrast, color balance). In rare instances for which this is not possible (e.g., alterations to a single color channel on a microscopy image), any alterations must be clearly stated in the figure legend and in the Experimental Procedures section. Groupings and consolidation of data (e.g., cropping of images or removal of lanes from gels and blots) must be made apparent and should be explicitly indicated in the appropriate figure legends. Data comparisons should only be made from comparative experiments, and individual data should not be utilized across multiple figures. In cases in which data are used multiple times (e.g., multiple experiments were performed simultaneously with a single control experiment), this must be clearly stated within each figure legend. In the event that it is deemed necessary for proper evaluation of the manuscript, authors will be required to make the original unprocessed data available to the editors of the journal. All accepted manuscripts will be taken through a data presentation image screening process before publication.

RETWEETS 13 FAVORITES 5

3:50 PM - 10 Jan 2015

Authorship

- What does it mean to be an author?

2 AUGUST 2013 VOL 341 SCIENCE www.sciencemag.org

Two Dimensions of Value: Dopamine Neurons Represent Reward But Not Aversiveness

Christopher D. Fiorillo

Whereas reward (appetitiveness) and aversiveness (punishment) have been distinguished as two discrete dimensions within psychology and behavior, physiological and computational models of their neural representation have treated them as opposite sides of a single continuous dimension of "value." Here, I show that although dopamine neurons of the primate ventral midbrain are activated by evidence for reward and suppressed by evidence against reward, they are insensitive to aversiveness. This indicates that reward and aversiveness are represented independently as two dimensions, even by neurons that are closely related to motor function. Because theory and experiment support the existence of opponent neural representations for value, the present results imply four types of value-sensitive neurons corresponding to reward-ON (dopamine), reward-OFF, aversive-ON, and aversive-OFF.

Authorship

- What does it mean to be an author?

Physics Letters B 716 (2012) 1–29

Contents lists available at SciVerse ScienceDirect

Physics Letters B

www.elsevier.com/locate/physletb

Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC ☆

ATLAS Collaboration *

This paper is dedicated to the memory of our ATLAS colleagues who did not live to see the full impact and significance of their contributions to the experiment.

ATLAS = A Toroidal LHC Apparatus

Authorship: ATLAS Names 1, 2

[117] I. Stewart, F. Tackmann, Phys. Rev. D 85 (2012) 034011.
[118] ATLAS Collaboration, CMS Collaboration, Procedure for the LHC Higgs boson search combination in Summer 2011, ATL-PHYS-PUB-2011-011, CERN-CMS-NOTE-2011-005, 2011, http://cdsweb.cern.ch/record/1375842.
[119] L. Moneta, K. Belasco, K.S. Cranmer, S. Kreiss, A. Lazzaro, et al., The RooStats Project, PoS ACAT2010 (2010) 057, arXiv:1009.1003 [physics.data-an].
[120] K. Cranmer, G. Lewis, L. Moneta, A. Shibata, W. Verkerke, HistFactory: A tool for creating statistical models for use with RooFit and RooStats, CERN-OPEN-2012-016, 2012, http://cdsweb.cern.ch/record/1456844.
[121] W. Verkerke, D. Kirkby, The RooFit toolkit for data modeling, Tech. Rep., SLAC, Stanford, CA, June 2003, arXiv:physics/0306116 [physics.data-an].
[122] G. Cowan, K. Cranmer, E. Gross, O. Vitells, Eur. Phys. J. C 71 (2011) 1554.
[123] A.L. Read, J. Phys. G 28 (2002) 2693.
[124] E. Gross, O. Vitells, Eur. Phys. J. C 70 (2010) 525.
[125] ATLAS Collaboration, Phys. Lett. B (2012), submitted for publication, arXiv: 1205.6744 [hep-ex].
[126] ATLAS Collaboration, Phys. Lett. B (2012), submitted for publication, arXiv: 1206.2443 [hep-ex].
[127] ATLAS Collaboration, Observation of an excess of events in the search for the Standard Model Higgs boson in the gamma–gamma channel with the ATLAS detector, ATLAS-CONF-2012-091, 2012, http://cdsweb.cern.ch/record/1460410.
[128] ATLAS Collaboration, Phys. Lett. B (2012), submitted for publication, arXiv: 1206.6074 [hep-ex].
[129] ATLAS Collaboration, JHEP (2012), in press, arXiv:1206.5971 [hep-ex].
[130] ATLAS Collaboration, Phys. Lett. B (2012), submitted for publication, arXiv: 1207.0210 [hep-ex].
[131] ATLAS Collaboration, Observation of an excess of events in the search for the Standard Model Higgs Boson in the $H \to WW^{(*)} \to \ell\nu\ell\nu$ channel with the ATLAS detector, ATLAS-CONF-2012-098, 2012, http://cdsweb.cern.ch/record/1462530.
[132] ATLAS Collaboration, Eur. Phys. J. C 71 (2011) 1630.
[133] ATLAS Collaboration, Luminosity determination in pp collisions at $\sqrt{s} = 7$ TeV using the ATLAS detector in 2011, ATLAS-CONF-2011-116, 2011, http://cdsweb.cern.ch/record/1376384.
[134] M. Botje, J. Butterworth, A. Cooper-Sarkar, A. de Roeck, J. Feltesse, et al., The PDF4LHC Working Group interim recommendations, arXiv:1101.0538 [hep-ph].
[135] A. Martin, W. Stirling, R. Thorne, G. Watt, Eur. Phys. J. C 63 (2009) 189.
[136] R.D. Ball, et al., Nucl. Phys. B 849 (2011) 296.
[137] J.M. Campbell, R.K. Ellis, G. Zanderighi, JHEP 0610 (2006) 028.
[138] ATLAS Collaboration, Observation of an excess of events in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC, ATLAS-CONF-2012-093, 2012, http://cdsweb.cern.ch/record/1460439.
[139] ATLAS Collaboration, CMS Collaboration, Combined Standard Model Higgs boson searches with up to 2.3 fb^{-1} of pp collisions at $\sqrt{s} = 7$ TeV at the LHC, ATLAS-CONF-2011-157, CMS-PAS-HIG-11-023, 2011, http://cdsweb.cern.ch/record/1399599.
[140] L.D. Landau, Dokl. Akad. Nauk USSR 60 (1948) 207.
[141] C.N. Yang, Phys. Rev. 77 (1950) 242.

ATLAS Collaboration

G. Aad [48], T. Abajyan [21], B. Abbott [111], J. Abdallah [12], S. Abdel Khalek [115], A.A. Abdelalim [49], O. Abdinov [11], R. Aben [105], B. Abi [112], M. Abolins [88], O.S. AbouZeid [158], H. Abramowicz [153], H. Abreu [136], B.S. Acharya [164a,164b], L. Adamczyk [38], D.L. Adams [25], T.N. Addy [56], J. Adelman [176], S. Adomeit [98], P. Adragna [75], T. Adye [129], S. Aefsky [23], J.A. Aguilar-Saavedra [124b,a], M. Agustoni [17], M. Aharrouche [81], S.P. Ahlen [22], F. Ahles [48], A. Ahmad [148], M. Ahsan [41], G. Aielli [133a,133b], T. Akdogan [19a], T.P.A. Åkesson [79], G. Akimoto [155], A.V. Akimov [94], M.S. Alam [2], M.A. Alam [76], J. Albert [169], S. Albrand [55], M. Aleksa [30], I.N. Aleksandrov [64], F. Alessandria [89a], C. Alexa [26a], G. Alexander [153], G. Alexandre [49], T. Alexopoulos [10], M. Alhroob [164a,164c], M. Aliev [16], G. Alimonti [89a], J. Alison [120], B.M.M. Allbrooke [18], P.P. Allport [73], S.E. Allwood-Spiers [53], J. Almond [82], A. Aloisio [102a,102b], R. Alon [172], A. Alonso [79], F. Alonso [70], A. Altheimer [35], B. Alvarez Gonzalez [88], M.G. Alviggi [102a,102b], K. Amako [65], C. Amelung [23], V.V. Ammosov [128,*], S.P. Amor Dos Santos [124a], A. Amorim [124a,b], N. Amram [153], C. Anastopoulos [30], L.S. Ancu [17], N. Andari [115], T. Andeen [35], C.F. Anders [58b], G. Anders [58a], K.J. Anderson [31], A. Andreazza [89a,89b], V. Andrei [58a], M.-L. Andrieux [55], X.S. Anduaga [70], S. Angelidakis [9], P. Anger [44], A. Angerami [35], F. Anghinolfi [30], A. Anisenkov [107], N. Anjos [124a], A. Annovi [47], A. Antonaki [9], M. Antonelli [47], A. Antonov [96], J. Antos [144b], F. Anulli [132a], M. Aoki [101], S. Aoun [83], L. Aperio Bella [5], R. Apolle [118,c], G. Arabidze [88], I. Aracena [143], Y. Arai [65], A.T.H. Arce [45], S. Arfaoui [148], J.-F. Arguin [93], E. Arik [19a,*], M. Arik [19a], A.J. Armbruster [87], O. Arnaez [81], V. Arnal [80], C. Arnault [115], A. Artamonov [95], G. Artoni [132a,132b], D. Arutinov [21], S. Asai [155], S. Ask [28], B. Åsman [146a,146b], L. Asquith [6], K. Assamagan [25], A. Astbury [169], M. Atkinson [165], B. Aubert [5], E. Auge [115], K. Augsten [127], M. Aurousseau [145a], G. Avolio [163], R. Avramidou [10], D. Axen [168], G. Azuelos [93,d], Y. Azuma [155], M.A. Baak [30], G. Baccaglioni [89a], C. Bacci [134a,134b], A.M. Bach [15], H. Bachacou [136], K. Bachas [30], M. Backes [49], M. Backhaus [21], J. Backus Mayes [143], E. Badescu [26a], P. Bagnaia [132a,132b], S. Bahinipati [3], Y. Bai [33a], D.C. Bailey [158], T. Bain [158], J.T. Baines [129], O.K. Baker [176], M.D. Baker [25], S. Baker [77], P. Balek [126], E. Banas [39], P. Banerjee [93], Sw. Banerjee [173], D. Banfi [30], A. Bangert [150], V. Bansal [169], H.S. Bansil [18], L. Barak [172], S.P. Baranov [94], A. Barbaro Galtieri [15], T. Barber [48], E.L. Barberio [86], D. Barberis [50a,50b], M. Barbero [21], D.Y. Bardin [64], T. Barillari [99], M. Barisonzi [175], T. Barklow [143], N. Barlow [28], B.M. Barnett [129], R.M. Barnett [15], A. Baroncelli [134a], G. Barone [49], A.J. Barr [118], F. Barreiro [80], J. Barreiro Guimarães da Costa [57], P. Barrillon [115], R. Bartoldus [143], A.E. Barton [71], V. Bartsch [149], A. Basye [165], R.L. Bates [53], L. Batkova [144a], J.R. Batley [28], A. Battaglia [17], M. Battistin [30], F. Bauer [136], H.S. Bawa [143,e], S. Beale [98], T. Beau [78], [illegible]eccherle [50a], P. Bechtle [21], H.P. Beck [17], A.K. Becker [175], S. Becker [98], [illegible]ecks [175], A.J. Beddall [19c], A. Beddall [19c], S. Bedikian [176], V.A. Bednyakov [64], [illegible]05, M. Begel [25], S. Behar Harpaz [152], P.K. Behera [62], M. Beimforde [99],

C. Belanger-Champagne [85], P.J. Bell [49], W.H. Bell [49], G. Bella [153], L. Bellagamba [20a], M. Bellomo [30], A. Belloni [57], O. Beloborodova [107,f], K. Belotskiy [96], O. Beltramello [30], O. Benary [153], D. Benchekroun [135a], K. Bendtz [146a,146b], N. Benekos [165], Y. Benhammou [153], E. Benhar Noccioli [49], J.A. Benitez Garcia [159b], D.P. Benjamin [45], M. Benoit [115], J.R. Bensinger [23], K. Benslama [130], S. Bentvelsen [105], D. Berge [30], E. Bergeaas Kuutmann [42], N. Berger [5], F. Berghaus [169], E. Berglund [105], J. Beringer [15], P. Bernat [77], R. Bernhard [48], C. Bernius [25], F.U. Bernlochner [169], T. Berry [76], C. Bertella [83], A. Bertin [20a,20b], F. Bertolucci [122a,122b], M.I. Besana [89a,89b], G.J. Besjes [104], N. Besson [136], S. Bethke [99], W. Bhimji [46], R.M. Bianchi [30], M. Bianco [72a,72b], O. Biebel [98], S.P. Bieniek [77], K. Bierwagen [54], J. Biesiada [15], M. Biglietti [134a], H. Bilokon [47], M. Bindi [20a,20b], S. Binet [115], A. Bingul [19c], C. Bini [132a,132b], C. Biscarat [178], B. Bittner [99], K.M. Black [22], R.E. Blair [6], J.-B. Blanchard [136], G. Blanchot [30], T. Blazek [144a], I. Bloch [42], C. Blocker [23], J. Blocki [39], A. Blondel [49], W. Blum [81], U. Blumenschein [54], G.J. Bobbink [105], V.B. Bobrovnikov [107], S.S. Bocchetta [79], A. Bocci [45], C.R. Boddy [118], M. Boehler [48], J. Boek [175], N. Boelaert [36], J.A. Bogaerts [30], A. Bogdanchikov [107], A. Bogouch [90,*], C. Bohm [146a], J. Bohm [125], V. Boisvert [76], T. Bold [38], V. Boldea [26a], N.M. Bolnet [136], M. Bomben [78], M. Bona [75], M. Boonekamp [136], S. Bordoni [78], C. Borer [17], A. Borisov [128], G. Borissov [71], I. Borjanovic [13a], M. Borri [82], S. Borroni [87], V. Bortolotto [134a,134b], K. Bos [105], D. Boscherini [20a], M. Bosman [12], H. Boterenbrood [105], J. Bouchami [93], J. Boudreau [123], E.V. Bouhova-Thacker [71], D. Boumediene [34], C. Bourdarios [115], N. Bousson [83], A. Boveia [31], J. Boyd [30], I.R. Boyko [64], I. Bozovic-Jelisavcic [13b], J. Bracinik [18], P. Branchini [134a], G.W. Brandenburg [57], A. Brandt [8], G. Brandt [118], O. Brandt [54], U. Bratzler [156], B. Brau [84], J.E. Brau [114], H.M. Braun [175,*], S.F. Brazzale [164a,164c], B. Brelier [158], J. Bremer [30], K. Brendlinger [120], R. Brenner [166], S. Bressler [172], D. Britton [53], F.M. Brochu [28], I. Brock [21], R. Brock [88], F. Broggi [89a], C. Bromberg [88], J. Bronner [99], G. Brooijmans [35], T. Brooks [76], W.K. Brooks [32b], G. Brown [82], H. Brown [8], P.A. Bruckman de Renstrom [39], D. Bruncko [144b], R. Bruneliere [48], S. Brunet [60], A. Bruni [20a], G. Bruni [20a], M. Bruschi [20a], T. Buanes [14], Q. Buat [55], F. Bucci [49], J. Buchanan [118], P. Buchholz [141], R.M. Buckingham [118], A.G. Buckley [46], S.I. Buda [26a], I.A. Budagov [64], B. Budick [108], V. Büscher [81], L. Bugge [117], O. Bulekov [96], A.C. Bundock [73], M. Bunse [43], T. Buran [117], H. Burckhart [30], S. Burdin [73], T. Burgess [14], S. Burke [129], E. Busato [34], P. Bussey [53], C.P. Buszello [166], B. Butler [143], J.M. Butler [22], C.M. Buttar [53], J.M. Butterworth [77], W. Buttinger [28], S. Cabrera Urbán [167], D. Caforio [20a,20b], O. Cakir [4a], P. Calafiura [15], G. Calderini [78], P. Calfayan [98], R. Calkins [106], L.P. Caloba [24a], R. Caloi [132a,132b], D. Calvet [34], S. Calvet [34], R. Camacho Toro [34], P. Camarri [133a,133b], D. Cameron [117], L.M. Caminada [15], R. Caminal Armadans [12], S. Campana [30], M. Campanelli [77], V. Canale [102a,102b], F. Canelli [31,g], A. Canepa [159a], J. Cantero [80], R. Cantrill [76], L. Capasso [102a,102b], M.D.M. Capeans Garrido [30], I. Caprini [26a], M. Caprini [26a], D. Capriotti [99], M. Capua [37a,37b], R. Caputo [81], R. Cardarelli [133a], T. Carli [30], G. Carlino [102a], L. Carminati [89a,89b], B. Caron [85], S. Caron [104], E. Carquin [32b], G.D. Carrillo-Montoya [173], A.A. Carter [75], J.R. Carter [28], J. Carvalho [124a,h], D. Casadei [108], M.P. Casado [12], M. Cascella [122a,122b], C. Caso [50a,50b,*], A.M. Castaneda Hernandez [173,i], E. Castaneda-Miranda [173], V. Castillo Gimenez [167], N.F. Castro [124a], G. Cataldi [72a], P. Catastini [57], A. Catinaccio [30], J.R. Catmore [30], A. Cattai [30], G. Cattani [133a,133b], S. Caughron [88], V. Cavaliere [165], P. Cavalleri [78], D. Cavalli [89a], M. Cavalli-Sforza [12], V. Cavasinni [122a,122b], F. Ceradini [134a,134b], A.S. Cerqueira [24b], A. Cerri [30], L. Cerrito [75], F. Cerutti [47], S.A. Cetin [19b], A. Chafaq [135a], D. Chakraborty [106], I. Chalupkova [126], K. Chan [3], P. Chang [165], B. Chapleau [85], J.D. Chapman [28], J.W. Chapman [87], E. Chareyre [78], D.G. Charlton [18], V. Chavda [82], C.A. Chavez Barajas [30], S. Cheatham [85], S. Chekanov [6], S.V. Chekulaev [159a], G.A. Chelkov [64], M.A. Chelstowska [104], C. Chen [63], H. Chen [25], S. Chen [33c], X. Chen [173], Y. Chen [35], Y. Cheng [31], A. Cheplakov [64], R. Cherkaoui El Moursli [135e], V. Chernyatin [25], E. Cheu [7], S.L. Cheung [158], L. Chevalier [136], G. Chiefari [102a,102b], L. Chikovani [51a,*], J.T. Childers [30], A. Chilingarov [71], G. Chiodini [72a], A.S. Chisholm [18], R.T. Chislett [77], A. Chitan [26a], M.V. Chizhov [64], G. Choudalakis [31], S. Chouridou [137], I.A. Christidi [77], A. Christov [48], D. Chromek-Burckhart [30], M.L. Chu [151], J. Chudoba [125], G. Ciapetti [132a,132b], A.K. Ciftci [4a], R. Ciftci [4a], D. Cinca [34], V. Cindro [74], C. Ciocca [20a,20b], A. Ciocio [15], M. Cirilli [87], P. Cirkovic [13b], Z.H. Citron [172], M. Citterio [89a], M. Ciubancan [26a], A. Clark [49], P.J. Clark [46], R.N. Clarke [15], W. Cleland [123], J.C. Clemens [83], B. Clement [55], C. Clement [146a,146b], Y. Coadou [83], M. Cobal [164a,164c], A. Coccaro [138], J. Cochran [63], L. Coffey [23], J.G. Cogan [143], J. Coggeshall [165], E. Cogneras [178], J. Colas [5], S. Cole [106], A.P. Colijn [105], N.J. Collins [18], C. Collins-Tooth [53], J. Collot [55], T. Colombo [119a,119b], G. Colon [84], G. Compostella [99], P. Conde Muiño [124a], E. Coniavitis [166], M.C. Conidi [12], S.M. Consonni [89a,89b], V. Consorti [48],

Wakeley

Authorship: ATLAS Names 3, 4

S. Constantinescu [26a], C. Conta [119a,119b], G. Conti [57], F. Conventi [102a,j], M. Cooke [15], B.D. Cooper [77], A.M. Cooper-Sarkar [118], N.J. Cooper-Smith [76], K. Copic [15], T. Cornelissen [175], M. Corradi [20a], F. Corriveau [85,k], A. Cortes-Gonzalez [165], G. Cortiana [99], G. Costa [89a], M.J. Costa [167], D. Costanzo [139], D. Côté [30], L. Courneyea [169], G. Cowan [76], C. Cowden [28], B.E. Cox [82], K. Cranmer [108], F. Crescioli [122a,122b], M. Cristinziani [21], G. Crosetti [37a,37b], S. Crépé-Renaudin [55], C.-M. Cuciuc [26a], C. Cuenca Almenar [176], T. Cuhadar Donszelmann [139], M. Curatolo [47], C.J. Curtis [18], C. Cuthbert [150], P. Cwetanski [60], H. Czirr [141], P. Czodrowski [44], Z. Czyczula [176], S. D'Auria [53], M. D'Onofrio [73], A. D'Orazio [132a,132b], M.J. Da Cunha Sargedas De Sousa [124a], C. Da Via [82], W. Dabrowski [38], A. Dafinca [118], T. Dai [87], C. Dallapiccola [84], M. Dam [36], M. Dameri [50a,50b], D.S. Damiani [137], H.O. Danielsson [30], V. Dao [49], G. Darbo [50a], G.L. Darlea [26b], J.A. Dassoulas [42], W. Davey [21], T. Davidek [126], N. Davidson [86], R. Davidson [71], E. Davies [118,c], M. Davies [93], O. Davignon [78], A.R. Davison [77], Y. Davygora [58a], E. Dawe [142], I. Dawson [139], R.K. Daya-Ishmukhametova [23], K. De [8], R. de Asmundis [102a], S. De Castro [20a,20b], S. De Cecco [78], J. de Graat [98], N. De Groot [104], P. de Jong [105], C. De La Taille [115], H. De la Torre [80], F. De Lorenzi [63], L. de Mora [71], L. De Nooij [105], D. De Pedis [132a], A. De Salvo [132a], U. De Sanctis [164a,164c], A. De Santo [149], J.B. De Vivie De Regie [115], G. De Zorzi [132a,132b], W.J. Dearnaley [71], R. Debbe [25], C. Debenedetti [46], B. Dechenaux [55], D.V. Dedovich [64], J. Degenhardt [120], C. Del Papa [164a,164c], J. Del Peso [80], T. Del Prete [122a,122b], T. Delemontex [55], M. Deliyergiyev [74], A. Dell'Acqua [30], L. Dell'Asta [22], M. Della Pietra [102a,j], D. della Volpe [102a,102b], M. Delmastro [5], P. Delpierre [83], P.A. Delsart [55], C. Deluca [105], S. Demers [176], M. Demichev [64], B. Demirkoz [12,l], J. Deng [163], S.P. Denisov [128], D. Derendarz [39], J.E. Derkaoui [135d], F. Derue [78], P. Dervan [73], K. Desch [21], E. Devetak [148], P.O. Deviveiros [105], A. Dewhurst [129], B. DeWilde [148], S. Dhaliwal [158], R. Dhullipudi [25,m], A. Di Ciaccio [133a,133b], L. Di Ciaccio [5], C. Di Donato [102a,102b], A. Di Girolamo [30], B. Di Girolamo [30], S. Di Luise [134a,134b], A. Di Mattia [173], B. Di Micco [30], R. Di Nardo [47], A. Di Simone [133a,133b], R. Di Sipio [20a,20b], M.A. Diaz [32a], E.B. Diehl [87], J. Dietrich [42], T.A. Dietzsch [58a], S. Diglio [86], K. Dindar Yagci [40], J. Dingfelder [21], F. Dinut [26a], C. Dionisi [132a,132b], P. Dita [26a], S. Dita [26a], F. Dittus [30], F. Djama [83], T. Djobava [51b], M.A.B. do Vale [24c], A. Do Valle Wemans [124a,n], T.K.O. Doan [5], M. Dobbs [85], R. Dobinson [30,*], D. Dobos [30], E. Dobson [30,o], J. Dodd [35], C. Doglioni [49], T. Doherty [53], Y. Doi [65,*], J. Dolejsi [126], I. Dolenc [74], Z. Dolezal [126], B.A. Dolgoshein [96,*], T. Dohmae [155], M. Donadelli [24d], J. Donini [34], J. Dopke [30], A. Doria [102a], A. Dos Anjos [173], A. Dotti [122a,122b], M.T. Dova [70], J.D. Dowell [18], A.D. Doxiadis [105], A.T. Doyle [53], N. Dressnandt [120], M. Dris [10], J. Dubbert [99], S. Dube [15], E. Duchovni [172], G. Duckeck [98], D. Duda [175], A. Dudarev [30], F. Dudziak [63], M. Dührssen [30], I.P. Duerdoth [82], L. Duflot [115], M.-A. Dufour [85], L. Duguid [76], M. Dunford [58a], H. Duran Yildiz [4a], R. Duxfield [139], M. Dwuznik [38], F. Dydak [30], M. Düren [52], W.L. Ebenstein [45], J. Ebke [98], S. Eckweiler [81], K. Edmonds [81], W. Edson [2], C.A. Edwards [76], N.C. Edwards [53], W. Ehrenfeld [42], T. Eifert [143], G. Eigen [14], K. Einsweiler [15], E. Eisenhandler [75], T. Ekelof [166], M. El Kacimi [135c], M. Ellert [166], S. Elles [5], F. Ellinghaus [81], K. Ellis [75], N. Ellis [30], J. Elmsheuser [98], M. Elsing [30], D. Emeliyanov [129], R. Engelmann [148], A. Engl [98], B. Epp [61], J. Erdmann [54], A. Ereditato [17], D. Eriksson [146a], J. Ernst [2], M. Ernst [25], J. Ernwein [136], D. Errede [165], S. Errede [165], E. Ertel [81], M. Escalier [115], H. Esch [43], C. Escobar [123], X. Espinal Curull [12], B. Esposito [47], F. Etienne [83], A.I. Etienvre [136], E. Etzion [153], D. Evangelakou [54], H. Evans [60], L. Fabbri [20a,20b], C. Fabre [30], R.M. Fakhrutdinov [128], S. Falciano [132a], Y. Fang [173], M. Fanti [89a,89b], A. Farbin [8], A. Farilla [134a], J. Farley [148], T. Farooque [158], S. Farrell [163], S.M. Farrington [170], P. Farthouat [30], F. Fassi [167], P. Fassnacht [30], D. Fassouliotis [9], B. Fatholahzadeh [158], A. Favareto [89a,89b], L. Fayard [115], S. Fazio [37a,37b], R. Febbraro [34], P. Federic [144a], O.L. Fedin [121], W. Fedorko [88], M. Fehling-Kaschek [48], L. Feligioni [83], D. Fellmann [6], C. Feng [33d], E.J. Feng [6], A.B. Fenyuk [128], J. Ferencei [144b], W. Fernando [6], S. Ferrag [53], J. Ferrando [53], V. Ferrara [42], A. Ferrari [166], P. Ferrari [105], R. Ferrari [119a], D.E. Ferreira de Lima [53], A. Ferrer [167], D. Ferrere [49], C. Ferretti [87], A. Ferretto Parodi [50a,50b], M. Fiascaris [31], F. Fiedler [81], A. Filipčič [74], F. Filthaut [104], M. Fincke-Keeler [169], M.C.N. Fiolhais [124a,h], L. Fiorini [167], A. Firan [40], G. Fischer [42], M.J. Fisher [109], M. Flechl [48], I. Fleck [141], J. Fleckner [81], P. Fleischmann [174], S. Fleischmann [175], T. Flick [175], A. Floderus [79], L.R. Flores Castillo [173], [illegible]eca Martin [17], A. Formica [136], A. Forti [82], D. Fortin [159a], D. Fournier [115], [illegible] Francavilla [12], M. Franchini [20a,20b], S. Franchino [119a,119b], D. Francis [30], [illegible], S. Franz [30], M. Fraternali [119a,119b], S. Fratina [120], S.T. French [28], C. Friedrich [42], [illegible], D. Froidevaux [30], J.A. Frost [28], C. Fukunaga [156], E. Fullana Torregrosa [30],

Wakeley

B.G. Fulsom [143], J. Fuster [167], C. Gabaldon [30], O. Gabizon [172], S. Gadatsch [105], T. Gadfort [25], S. Gadomski [49], G. Gagliardi [50a,50b], P. Gagnon [60], C. Galea [98], B. Galhardo [124a], E.J. Gallas [118], V. Gallo [17], B.J. Gallop [129], P. Gallus [125], K.K. Gan [109], Y.S. Gao [143,e], A. Gaponenko [15], F. Garberson [176], M. Garcia-Sciveres [15], C. García [167], J.E. García Navarro [167], R.W. Gardner [31], N. Garelli [30], H. Garitaonandia [105], V. Garonne [30], C. Gatti [47], G. Gaudio [119a], B. Gaur [141], L. Gauthier [136], P. Gauzzi [132a,132b], I.L. Gavrilenko [94], C. Gay [168], G. Gaycken [21], E.N. Gazis [10], P. Ge [33d], Z. Gecse [168], C.N.P. Gee [129], D.A.A. Geerts [105], Ch. Geich-Gimbel [21], K. Gellerstedt [146a,146b], C. Gemme [50a], A. Gemmell [53], M.H. Genest [55], S. Gentile [132a,132b], M. George [54], S. George [76], P. Gerlach [175], A. Gershon [153], C. Geweniger [58a], H. Ghazlane [135b], N. Ghodbane [34], B. Giacobbe [20a], S. Giagu [132a,132b], V. Giakoumopoulou [9], V. Giangiobbe [12], F. Gianotti [30], B. Gibbard [25], A. Gibson [158], S.M. Gibson [30], M. Gilchriese [15], O. Gildemeister [30], D. Gillberg [29], A.R. Gillman [129], D.M. Gingrich [3,d], J. Ginzburg [153], N. Giokaris [9], M.P. Giordani [164c], R. Giordano [102a,102b], F.M. Giorgi [16], P. Giovannini [99], P.F. Giraud [136], D. Giugni [89a], M. Giunta [93], P. Giusti [20a], B.K. Gjelsten [117], L.K. Gladilin [97], C. Glasman [80], J. Glatzer [21], A. Glazov [42], K.W. Glitza [175], G.L. Glonti [64], J.R. Goddard [75], J. Godfrey [142], J. Godlewski [30], M. Goebel [42], T. Göpfert [44], C. Goeringer [81], C. Gössling [43], S. Goldfarb [87], T. Golling [176], A. Gomes [124a,b], L.S. Gomez Fajardo [42], R. Gonçalo [76], J. Goncalves Pinto Firmino Da Costa [42], L. Gonella [21], S. González de la Hoz [167], G. Gonzalez Parra [12], M.L. Gonzalez Silva [27], S. Gonzalez-Sevilla [49], J.J. Goodson [148], L. Goossens [30], P.A. Gorbounov [95], H.A. Gordon [25], I. Gorelov [103], G. Gorfine [175], B. Gorini [30], E. Gorini [72a,72b], A. Gorišek [74], E. Gornicki [39], B. Gosdzik [42], A.T. Goshaw [6], M. Gosselink [105], M.I. Gostkin [64], I. Gough Eschrich [163], M. Gouighri [135a], D. Goujdami [135c], M.P. Goulette [49], A.G. Goussiou [138], C. Goy [5], S. Gozpinar [23], I. Grabowska-Bold [38], P. Grafström [20a,20b], K.-J. Grahn [42], E. Gramstad [117], F. Grancagnolo [72a], S. Grancagnolo [16], V. Grassi [148], V. Gratchev [121], N. Grau [35], H.M. Gray [30], J.A. Gray [148], E. Graziani [134a], O.G. Grebenyuk [121], T. Greenshaw [73], Z.D. Greenwood [25,m], K. Gregersen [36], I.M. Gregor [42], P. Grenier [143], J. Griffiths [8], N. Grigalashvili [64], A.A. Grillo [137], S. Grinstein [12], Ph. Gris [34], Y.V. Grishkevich [97], J.-F. Grivaz [115], E. Gross [172], J. Grosse-Knetter [54], J. Groth-Jensen [172], K. Grybel [141], D. Guest [176], C. Guicheney [34], T. Guillemin [115], S. Guindon [54], U. Gul [53], J. Gunther [125], B. Guo [158], J. Guo [35], P. Gutierrez [111], N. Guttman [153], O. Gutzwiller [173], C. Guyot [136], C. Gwenlan [118], C.B. Gwilliam [73], A. Haas [143], S. Haas [30], C. Haber [15], H.K. Hadavand [8], D.R. Hadley [18], P. Haefner [21], F. Hahn [30], S. Haider [30], Z. Hajduk [39], H. Hakobyan [177], D. Hall [118], J. Haller [54], K. Hamacher [175], P. Hamal [113], K. Hamano [86], M. Hamer [54], A. Hamilton [145b,p], S. Hamilton [161], L. Han [33b], K. Hanagaki [116], K. Hanawa [160], M. Hance [15], C. Handel [81], P. Hanke [58a], J.R. Hansen [36], J.B. Hansen [36], J.D. Hansen [36], P.H. Hansen [36], P. Hansson [143], K. Hara [160], A.S. Hard [173], G.A. Hare [137], T. Harenberg [175], S. Harkusha [90], D. Harper [87], R.D. Harrington [46], O.M. Harris [138], J. Hartert [48], F. Hartjes [105], T. Haruyama [65], A. Harvey [56], S. Hasegawa [101], Y. Hasegawa [140], S. Hassani [136], S. Haug [17], M. Hauschild [30], R. Hauser [88], M. Havranek [21], C.M. Hawkes [18], R.J. Hawkings [30], A.D. Hawkins [79], T. Hayakawa [66], T. Hayashi [160], D. Hayden [76], C.P. Hays [118], H.S. Hayward [73], S.J. Haywood [129], S.J. Head [18], V. Hedberg [79], L. Heelan [8], S. Heim [88], B. Heinemann [15], S. Heisterkamp [36], L. Helary [22], C. Heller [98], M. Heller [30], S. Hellman [146a,146b], D. Hellmich [21], C. Helsens [12], R.C.W. Henderson [71], M. Henke [58a], A. Henrichs [54], A.M. Henriques Correia [30], S. Henrot-Versille [115], C. Hensel [54], T. Henß [175], C.M. Hernandez [8], Y. Hernández Jiménez [167], R. Herrberg [16], G. Herten [48], R. Hertenberger [98], L. Hervas [30], G.G. Hesketh [77], N.P. Hessey [105], E. Higón-Rodriguez [167], J.C. Hill [28], K.H. Hiller [42], S. Hillert [21], S.J. Hillier [18], I. Hinchliffe [15], E. Hines [120], M. Hirose [116], F. Hirsch [43], D. Hirschbuehl [175], J. Hobbs [148], N. Hod [153], M.C. Hodgkinson [139], P. Hodgson [139], A. Hoecker [30], M.R. Hoeferkamp [103], J. Hoffman [40], D. Hoffmann [83], M. Hohlfeld [81], M. Holder [141], S.O. Holmgren [146a], T. Holy [127], J.L. Holzbauer [88], T.M. Hong [120], L. Hooft van Huysduynen [108], S. Horner [48], J.-Y. Hostachy [55], S. Hou [151], A. Hoummada [135a], J. Howard [118], J. Howarth [82], I. Hristova [16], J. Hrivnac [115], T. Hryn'ova [5], P.J. Hsu [81], S.-C. Hsu [15], D. Hu [35], Z. Hubacek [127], F. Hubaut [83], F. Huegging [21], A. Huettmann [42], T.B. Huffman [118], E.W. Hughes [35], G. Hughes [71], M. Huhtinen [30], M. Hurwitz [15], N. Huseynov [64,q], J. Huston [88], J. Huth [57], G. Iacobucci [49], G. Iakovidis [10], M. Ibbotson [82], I. Ibragimov [141], L. Iconomidou-Fayard [115], J. Idarraga [115], P. Iengo [102a], O. Igonkina [105], Y. Ikegami [65], M. Ikeno [65], D. Iliadis [154], N. Ilic [158], T. Ince [99], J. Inigo-Golfin [30], P. Ioannou [9], M. Iodice [134a], K. Iordanidou [9], V. Ippolito [132a,132b], A. Irles Quiles [167], C. Isaksson [166], M. Ishino [67], M. Ishitsuka [157], R. Ishmukhametov [109], C. Issever [118], S. Istin [19a], A.V. Ivashin [128], W. Iwanski [39], H. Iwasaki [65], J.M. Izen [41], V. Izzo [102a], B. Jackson [120], J.N. Jackson [73], P. Jackson [1], M.R. Jaekel [30], V. Jain [60], K. Jakobs [48],

Authorship: ATLAS Names 5, 6

S. Jakobsen [36], T. Jakoubek [125], J. Jakubek [127], D.O. Jamin [151], D.K. Jana [111], E. Jansen [77], H. Jansen [30], A. Jantsch [99], M. Janus [48], G. Jarlskog [79], L. Jeanty [57], I. Jen-La Plante [31], D. Jennens [86], P. Jenni [30], A.E. Loevschall-Jensen [36], P. Ježˇ [36], S. Jézéquel [5], M.K. Jha [20a], H. Ji [173], W. Ji [81], J. Jia [148], Y. Jiang [33b], M. Jimenez Belenguer [42], S. Jin [33a], O. Jinnouchi [157], M.D. Joergensen [36], D. Joffe [40], M. Johansen [146a,146b], K.E. Johansson [146a], P. Johansson [139], S. Johnert [42], K.A. Johns [7], K. Jon-And [146a,146b], G. Jones [170], R.W.L. Jones [71], T.J. Jones [73], C. Joram [30], P.M. Jorge [124a], K.D. Joshi [82], J. Jovicevic [147], T. Jovin [13b], X. Ju [173], C.A. Jung [43], R.M. Jungst [30], V. Juranek [125], P. Jussel [61], A. Juste Rozas [12], S. Kabana [17], M. Kaci [167], A. Kaczmarska [39], P. Kadlecik [36], M. Kado [115], H. Kagan [109], M. Kagan [57], E. Kajomovitz [152], S. Kalinin [175], L.V. Kalinovskaya [64], S. Kama [40], N. Kanaya [155], M. Kaneda [30], S. Kaneti [28], T. Kanno [157], V.A. Kantserov [96], J. Kanzaki [65], B. Kaplan [108], A. Kapliy [31], J. Kaplon [30], D. Kar [53], M. Karagounis [21], K. Karakostas [10], M. Karnevskiy [42], V. Kartvelishvili [71], A.N. Karyukhin [128], L. Kashif [173], G. Kasieczka [58b], R.D. Kass [109], A. Kastanas [14], M. Kataoka [5], Y. Kataoka [155], E. Katsoufis [10], J. Katzy [42], V. Kaushik [7], K. Kawagoe [69], T. Kawamoto [155], G. Kawamura [81], M.S. Kayl [105], S. Kazama [155], V.A. Kazanin [107], M.Y. Kazarinov [64], R. Keeler [169], P.T. Keener [120], R. Kehoe [40], M. Keil [54], G.D. Kekelidze [64], J.S. Keller [138], M. Kenyon [53], O. Kepka [125], N. Kerschen [30], B.P. Kerševan [74], S. Kersten [175], K. Kessoku [155], J. Keung [158], F. Khalil-zada [11], H. Khandanyan [146a,146b], A. Khanov [112], D. Kharchenko [64], A. Khodinov [96], A. Khomich [58a], T.J. Khoo [28], G. Khoriauli [21], A. Khoroshilov [175], V. Khovanskiy [95], E. Khramov [64], J. Khubua [51b], H. Kim [146a,146b], S.H. Kim [160], N. Kimura [171], O. Kind [16], B.T. King [73], M. King [66], R.S.B. King [118], J. Kirk [129], A.E. Kiryunin [99], T. Kishimoto [66], D. Kisielewska [38], T. Kitamura [66], T. Kittelmann [123], K. Kiuchi [160], E. Kladiva [144b], M. Klein [73], U. Klein [73], K. Kleinknecht [81], M. Klemetti [85], A. Klier [172], P. Klimek [146a,146b], A. Klimentov [25], R. Klingenberg [43], J.A. Klinger [82], E.B. Klinkby [36], T. Klioutchnikova [30], P.F. Klok [104], S. Klous [105], E.-E. Kluge [58a], T. Kluge [73], P. Kluit [105], S. Kluth [99], E. Kneringer [61], E.B.F.G. Knoops [83], A. Knue [54], B.R. Ko [45], T. Kobayashi [155], M. Kobel [44], M. Kocian [143], P. Kodys [126], K. Köneke [30], A.C. König [104], S. Koenig [81], L. Köpke [81], F. Koetsveld [104], P. Koevesarki [21], T. Koffas [29], E. Koffeman [105], L.A. Kogan [118], S. Kohlmann [175], F. Kohn [54], Z. Kohout [127], T. Kohriki [65], T. Koi [143], G.M. Kolachev [107,*], H. Kolanoski [16], V. Kolesnikov [64], I. Koletsou [89a], J. Koll [88], A.A. Komar [94], Y. Komori [155], T. Kondo [65], T. Kono [42,r], A.I. Kononov [48], R. Konoplich [108,s], N. Konstantinidis [77], R. Kopeliansky [152], S. Koperny [38], K. Korcyl [39], K. Kordas [154], A. Korn [118], A. Korol [107], I. Korolkov [12], E.V. Korolkova [139], V.A. Korotkov [128], O. Kortner [99], S. Kortner [99], V.V. Kostyukhin [21], S. Kotov [99], V.M. Kotov [64], A. Kotwal [45], C. Kourkoumelis [9], V. Kouskoura [154], A. Koutsman [159a], R. Kowalewski [169], T.Z. Kowalski [38], W. Kozanecki [136], A.S. Kozhin [128], V. Kral [127], V.A. Kramarenko [97], G. Kramberger [74], M.W. Krasny [78], A. Krasznahorkay [108], J.K. Kraus [21], S. Kreiss [108], F. Krejci [127], J. Kretzschmar [73], N. Krieger [54], P. Krieger [158], K. Kroeninger [54], H. Kroha [99], J. Kroll [120], J. Kroseberg [21], J. Krstic [13a], U. Kruchonak [64], H. Krüger [21], T. Kruker [17], N. Krumnack [63], Z.V. Krumshteyn [64], A. Kruse [173], T. Kubota [86], S. Kuday [4a], S. Kuehn [48], A. Kugel [58c], T. Kuhl [42], D. Kuhn [61], V. Kukhtin [64], Y. Kulchitsky [90], S. Kuleshov [32b], C. Kummer [98], M. Kuna [78], J. Kunkle [120], A. Kupco [125], H. Kurashige [66], M. Kurata [160], Y.A. Kurochkin [90], V. Kus [125], E.S. Kuwertz [147], M. Kuze [157], J. Kvita [142], R. Kwee [16], A. La Rosa [49], L. La Rotonda [37a,37b], L. Labarga [80], J. Labbe [5], S. Lablak [135a], C. Lacasta [167], F. Lacava [132a,132b], J. Lacey [29], H. Lacker [16], D. Lacour [78], V.R. Lacuesta [167], E. Ladygin [64], R. Lafaye [5], B. Laforge [78], T. Lagouri [176], S. Lai [48], E. Laisne [55], M. Lamanna [30], L. Lambourne [77], C.L. Lampen [7], W. Lampl [7], E. Lancon [136], U. Landgraf [48], M.P.J. Landon [75], V.S. Lang [58a], C. Lange [42], A.J. Lankford [163], F. Lanni [25], K. Lantzsch [175], S. Laplace [78], C. Lapoire [21], J.F. Laporte [136], T. Lari [89a], A. Larner [118], M. Lassnig [30], P. Laurelli [47], V. Lavorini [37a,37b], W. Lavrijsen [15], P. Laycock [73], T. Lazovich [57], O. Le Dortz [78], E. Le Guirriec [83], E. Le Menedeu [12], T. LeCompte [6], F. Ledroit-Guillon [55], H. Lee [105], J.S.H. Lee [116], S.C. Lee [151], L. Lee [176], M. Lefebvre [169], M. Legendre [136], F. Legger [98], C. Leggett [15], M. Lehmacher [21], G. Lehmann Miotto [30], X. Lei [7], M.A.L. Leite [24d], R. Leitner [126], D. Lellouch [172], B. Lemmer [54], V. Lendermann [58a], K.J.C. Leney [145b], T. Lenz [105], G. Lenzen [175], B. Lenzi [30], K. Leonhardt [44], S. Leontsinis [10], F. Lepold [58a], C. Leroy [93], J.-R. Lessard [169], C.G. Lester [28], C.M. Lester [120], J. Levêque [5], D. Levin [87], L.J. Levinson [172], A. Lewis [118], G.H. Lewis [108], A.M. Leyko [21], M. Leyton [16], B. Li [83], H. Li [148], H.L. Li [31], S. Li [33b,t], X. Li [87], Z. Liang [118,u], H. Liao [34], B. Liberti [133a], P. Lichard [30], M. Lichtnecker [98], K. Lie [165], [illegible], A. Limosani [86], M. Limper [62], S.C. Lin [151,v], F. Linde [105], J.T. Linnemann [88], [illegible] [14], T.M. Liss [165], D. Lissauer [25], A. Lister [49], A.M. Litke [137], C. Liu [29], D. Liu [151], [illegible] [33b,w], L. Liu [87], M. Liu [33b], Y. Liu [33b], M. Livan [119a,119b], S.S.A. Livermore [118],

A. Lleres [55], J. Llorente Merino [80], S.L. Lloyd [75], E. Lobodzinska [42], P. Loch [7], W.S. Lockman [137], T. Loddenkoetter [21], F.K. Loebinger [82], A. Loginov [176], C.W. Loh [168], T. Lohse [16], K. Lohwasser [48], M. Lokajicek [125], V.P. Lombardo [5], J.D. Long [87], R.E. Long [71], L. Lopes [124a], D. Lopez Mateos [57], J. Lorenz [98], N. Lorenzo Martinez [115], M. Losada [162], P. Loscutoff [15], F. Lo Sterzo [132a,132b], M.J. Losty [159a,*], X. Lou [41], A. Lounis [115], K.F. Loureiro [162], J. Love [6], P.A. Love [71], A.J. Lowe [143,e], F. Lu [33a], H.J. Lubatti [138], C. Luci [132a,132b], A. Lucotte [55], A. Ludwig [44], D. Ludwig [42], I. Ludwig [48], J. Ludwig [48], F. Luehring [60], G. Luijckx [105], W. Lukas [61], L. Luminari [132a], E. Lund [117], B. Lund-Jensen [147], B. Lundberg [79], J. Lundberg [146a,146b], O. Lundberg [146a,146b], J. Lundquist [36], M. Lungwitz [81], D. Lynn [25], E. Lytken [79], H. Ma [25], L.L. Ma [173], G. Maccarrone [47], A. Macchiolo [99], B. Maček [74], J. Machado Miguens [124a], R. Mackeprang [36], R.J. Madaras [15], H.J. Maddocks [71], W.F. Mader [44], R. Maenner [58c], T. Maeno [25], P. Mättig [175], S. Mättig [81], L. Magnoni [163], E. Magradze [54], K. Mahboubi [48], J. Mahlstedt [105], S. Mahmoud [73], G. Mahout [18], C. Maiani [136], C. Maidantchik [24a], A. Maio [124a,b], S. Majewski [25], Y. Makida [65], N. Makovec [115], P. Mal [136], B. Malaescu [30], Pa. Malecki [39], P. Malecki [39], V.P. Maleev [121], F. Malek [55], U. Mallik [62], D. Malon [6], C. Malone [143], S. Maltezos [10], V. Malyshev [107], S. Malyukov [30], R. Mameghani [98], J. Mamuzic [13b], A. Manabe [65], L. Mandelli [89a], I. Mandić [74], R. Mandrysch [16], J. Maneira [124a], A. Manfredini [99], P.S. Mangeard [88], L. Manhaes de Andrade Filho [24b], J.A. Manjarres Ramos [136], A. Mann [54], P.M. Manning [137], A. Manousakis-Katsikakis [9], B. Mansoulie [136], A. Mapelli [30], L. Mapelli [30], L. March [167], J.F. Marchand [29], F. Marchese [133a,133b], G. Marchiori [78], M. Marcisovsky [125], C.P. Marino [169], F. Marroquim [24a], Z. Marshall [30], F.K. Martens [158], L.F. Marti [17], S. Marti-Garcia [167], B. Martin [30], B. Martin [88], J.P. Martin [93], T.A. Martin [18], V.J. Martin [46], B. Martin dit Latour [49], S. Martin-Haugh [149], M. Martinez [12], V. Martinez Outschoorn [57], A.C. Martyniuk [169], M. Marx [82], F. Marzano [132a], A. Marzin [111], L. Masetti [81], T. Mashimo [155], R. Mashinistov [94], J. Masik [82], A.L. Maslennikov [107], I. Massa [20a,20b], G. Massaro [105], N. Massol [5], P. Mastrandrea [148], A. Mastroberardino [37a,37b], T. Masubuchi [155], P. Matricon [115], H. Matsunaga [155], T. Matsushita [66], C. Mattravers [118,c], J. Maurer [83], S.J. Maxfield [73], A. Mayne [139], R. Mazini [151], M. Mazur [21], L. Mazzaferro [133a,133b], M. Mazzanti [89a], J. Mc Donald [85], S.P. Mc Kee [87], A. McCarn [165], R.L. McCarthy [148], T.G. McCarthy [29], N.A. McCubbin [129], K.W. McFarlane [56,*], J.A. Mcfayden [139], G. Mchedlidze [51b], T. Mclaughlan [18], S.J. McMahon [129], R.A. McPherson [169,k], A. Meade [84], J. Mechnich [105], M. Mechtel [175], M. Medinnis [42], R. Meera-Lebbai [111], T. Meguro [116], R. Mehdiyev [93], S. Mehlhase [36], A. Mehta [73], K. Meier [58a], B. Meirose [79], C. Melachrinos [31], B.R. Mellado Garcia [173], F. Meloni [89a,89b], L. Mendoza Navas [162], Z. Meng [151,x], A. Mengarelli [20a,20b], S. Menke [99], E. Meoni [161], K.M. Mercurio [57], P. Mermod [49], L. Merola [102a,102b], C. Meroni [89a], F.S. Merritt [31], H. Merritt [109], A. Messina [30,y], J. Metcalfe [25], A.S. Mete [163], C. Meyer [81], C. Meyer [31], J.-P. Meyer [136], J. Meyer [174], J. Meyer [54], T.C. Meyer [30], S. Michal [30], L. Micu [26a], R.P. Middleton [129], S. Migas [73], L. Mijović [136], G. Mikenberg [172], M. Mikestikova [125], M. Mikuž [74], D.W. Miller [31], R.J. Miller [88], W.J. Mills [168], C. Mills [57], A. Milov [172], D.A. Milstead [146a,146b], D. Milstein [172], A.A. Minaenko [128], M. Miñano Moya [167], I.A. Minashvili [64], A.I. Mincer [108], B. Mindur [38], M. Mineev [64], Y. Ming [173], L.M. Mir [12], G. Mirabelli [132a], J. Mitrevski [137], V.A. Mitsou [167], S. Mitsui [65], P.S. Miyagawa [139], J.U. Mjörnmark [79], T. Moa [146a,146b], V. Moeller [28], K. Mönig [42], N. Möser [21], S. Mohapatra [148], W. Mohr [48], R. Moles-Valls [167], A. Molfetas [30], J. Monk [77], E. Monnier [83], J. Montejo Berlingen [12], F. Monticelli [70], S. Monzani [20a,20b], R.W. Moore [3], G.F. Moorhead [86], C. Mora Herrera [49], A. Moraes [53], N. Morange [136], J. Morel [54], G. Morello [37a,37b], D. Moreno [81], M. Moreno Llácer [167], P. Morettini [50a], M. Morgenstern [44], M. Morii [57], A.K. Morley [30], G. Mornacchi [30], J.D. Morris [75], L. Morvaj [101], H.G. Moser [99], M. Mosidze [51b], J. Moss [109], R. Mount [143], E. Mountricha [10,z], S.V. Mouraviev [94,*], E.J.W. Moyse [84], F. Mueller [58a], J. Mueller [123], K. Mueller [21], T.A. Müller [98], T. Mueller [81], D. Muenstermann [30], Y. Munwes [153], W.J. Murray [129], I. Mussche [105], E. Musto [102a,102b], A.G. Myagkov [128], M. Myska [125], O. Nackenhorst [54], J. Nadal [12], K. Nagai [160], R. Nagai [157], K. Nagano [65], A. Nagarkar [109], Y. Nagasaka [59], M. Nagel [99], A.M. Nairz [30], Y. Nakahama [30], K. Nakamura [155], T. Nakamura [155], I. Nakano [110], G. Nanava [21], A. Napier [161], R. Narayan [58b], M. Nash [77,c], T. Nattermann [21], T. Naumann [42], G. Navarro [162], H.A. Neal [87], P.Yu. Nechaeva [94], T.J. Neep [82], A. Negri [119a,119b], G. Negri [30], M. Negrini [20a], S. Nektarijevic [49], A. Nelson [163], T.K. Nelson [143], S. Nemecek [125], P. Nemethy [108], A.A. Nepomuceno [24a], M. Nessi [30,aa], M.S. Neubauer [165], M. Neumann [175], A. Neusiedl [81], R.M. Neves [108], P. Nevski [25], F.M. Newcomer [120], P.R. Newman [18], V. Nguyen Thi Hong [136], R.B. Nickerson [118],

Wakeley

Authorship: ATLAS Names 7, 8

R. Nicolaidou [136], B. Nicquevert [30], F. Niedercorn [115], J. Nielsen [137], N. Nikiforou [35], A. Nikiforov [16], V. Nikolaenko [128], I. Nikolic-Audit [78], K. Nikolics [49], K. Nikolopoulos [18], H. Nilsen [48], P. Nilsson [8], Y. Ninomiya [155], A. Nisati [132a], R. Nisius [99], T. Nobe [157], L. Nodulman [6], M. Nomachi [116], I. Nomidis [154], S. Norberg [111], M. Nordberg [30], P.R. Norton [129], J. Novakova [126], M. Nozaki [65], L. Nozka [113], I.M. Nugent [159a], A.-E. Nuncio-Quiroz [21], G. Nunes Hanninger [86], T. Nunnemann [98], E. Nurse [77], B.J. O'Brien [46], D.C. O'Neil [142], V. O'Shea [53], L.B. Oakes [98], F.G. Oakham [29,d], H. Oberlack [99], J. Ocariz [78], A. Ochi [66], S. Oda [69], S. Odaka [65], J. Odier [83], H. Ogren [60], A. Oh [82], S.H. Oh [45], C.C. Ohm [30], T. Ohshima [101], W. Okamura [116], H. Okawa [25], Y. Okumura [31], T. Okuyama [155], A. Olariu [26a], A.G. Olchevski [64], S.A. Olivares Pino [32a], M. Oliveira [124a,h], D. Oliveira Damazio [25], E. Oliver Garcia [167], D. Olivito [120], A. Olszewski [39], J. Olszowska [39], A. Onofre [124a,ab], P.U.E. Onyisi [31], C.J. Oram [159a], M.J. Oreglia [31], Y. Oren [153], D. Orestano [134a,134b], N. Orlando [72a,72b], I. Orlov [107], C. Oropeza Barrera [53], R.S. Orr [158], B. Osculati [50a,50b], R. Ospanov [120], C. Osuna [12], G. Otero y Garzon [27], J.P. Ottersbach [105], M. Ouchrif [135d], E.A. Ouellette [169], F. Ould-Saada [117], A. Ouraou [136], Q. Ouyang [33a], A. Ovcharova [15], M. Owen [82], S. Owen [139], V.E. Ozcan [19a], N. Ozturk [8], A. Pacheco Pages [12], C. Padilla Aranda [12], S. Pagan Griso [15], E. Paganis [139], C. Pahl [99], F. Paige [25], P. Pais [84], K. Pajchel [117], G. Palacino [159b], C.P. Paleari [7], S. Palestini [30], D. Pallin [34], A. Palma [124a], J.D. Palmer [18], Y.B. Pan [173], E. Panagiotopoulou [10], J.G. Panduro Vazquez [76], P. Pani [105], N. Panikashvili [87], S. Panitkin [25], D. Pantea [26a], A. Papadelis [146a], Th.D. Papadopoulou [10], A. Paramonov [6], D. Paredes Hernandez [34], W. Park [25,ac], M.A. Parker [28], F. Parodi [50a,50b], J.A. Parsons [35], U. Parzefall [48], S. Pashapour [54], E. Pasqualucci [132a], S. Passaggio [50a], A. Passeri [134a], F. Pastore [134a,134b,*], Fr. Pastore [76], G. Pásztor [49,ad], S. Pataraia [175], N. Patel [150], J.R. Pater [82], S. Patricelli [102a,102b], T. Pauly [30], M. Pecsy [144a], S. Pedraza Lopez [167], M.I. Pedraza Morales [173], S.V. Peleganchuk [107], D. Pelikan [166], H. Peng [33b], B. Penning [31], A. Penson [35], J. Penwell [60], M. Perantoni [24a], K. Perez [35,ae], T. Perez Cavalcanti [42], E. Perez Codina [159a], M.T. Pérez García-Estañ [167], V. Perez Reale [35], L. Perini [89a,89b], H. Pernegger [30], R. Perrino [72a], P. Perrodo [5], V.D. Peshekhonov [64], K. Peters [30], B.A. Petersen [30], J. Petersen [30], T.C. Petersen [36], E. Petit [5], A. Petridis [154], C. Petridou [154], E. Petrolo [132a], F. Petrucci [134a,134b], D. Petschull [42], M. Petteni [142], R. Pezoa [32b], A. Phan [86], P.W. Phillips [129], G. Piacquadio [30], A. Picazio [49], E. Piccaro [75], M. Piccinini [20a,20b], S.M. Piec [42], R. Piegaia [27], D.T. Pignotti [109], J.E. Pilcher [31], A.D. Pilkington [82], J. Pina [124a,b], M. Pinamonti [164a,164c], A. Pinder [118], J.L. Pinfold [3], B. Pinto [124a], C. Pizio [89a,89b], M. Plamondon [169], M.-A. Pleier [25], E. Plotnikova [64], A. Poblaguev [25], S. Poddar [58a], F. Podlyski [34], L. Poggioli [115], D. Pohl [21], M. Pohl [49], G. Polesello [119a], A. Policicchio [37a,37b], R. Polifka [158], A. Polini [20a], J. Poll [75], V. Polychronakos [25], D. Pomeroy [23], K. Pommès [30], L. Pontecorvo [132a], B.G. Pope [88], G.A. Popeneciu [26a], D.S. Popovic [13a], A. Poppleton [30], X. Portell Bueso [30], G.E. Pospelov [99], S. Pospisil [127], I.N. Potrap [99], C.J. Potter [149], C.T. Potter [114], G. Poulard [30], J. Poveda [60], V. Pozdnyakov [64], R. Prabhu [77], P. Pralavorio [83], A. Pranko [15], S. Prasad [30], R. Pravahan [25], S. Prell [63], K. Pretzl [17], D. Price [60], J. Price [73], L.E. Price [6], D. Prieur [123], M. Primavera [72a], K. Prokofiev [108], F. Prokoshin [32b], S. Protopopescu [25], J. Proudfoot [6], X. Prudent [44], M. Przybycien [38], H. Przysiezniak [5], S. Psoroulas [21], E. Ptacek [114], E. Pueschel [84], J. Purdham [87], M. Purohit [25,ac], P. Puzo [115], Y. Pylypchenko [62], J. Qian [87], A. Quadt [54], D.R. Quarrie [15], W.B. Quayle [173], F. Quinonez [32a], M. Raas [104], S. Raddum [117], V. Radeka [25], V. Radescu [42], P. Radloff [114], T. Rador [19a], F. Ragusa [89a,89b], G. Rahal [178], A.M. Rahimi [109], D. Rahm [25], S. Rajagopalan [25], M. Rammensee [48], M. Rammes [141], A.S. Randle-Conde [40], K. Randrianarivony [29], F. Rauscher [98], T.C. Rave [48], M. Raymond [30], A.L. Read [117], D.M. Rebuzzi [119a,119b], A. Redelbach [174], G. Redlinger [25], R. Reece [120], K. Reeves [41], E. Reinherz-Aronis [153], A. Reinsch [114], I. Reisinger [43], C. Rembser [30], Z.L. Ren [151], A. Renaud [115], M. Rescigno [132a], S. Resconi [89a], B. Resende [136], P. Reznicek [98], R. Rezvani [158], R. Richter [99], E. Richter-Was [5,af], M. Ridel [78], M. Rijpstra [105], M. Rijssenbeek [148], A. Rimoldi [119a,119b], L. Rinaldi [20a], R.R. Rios [40], I. Riu [12], G. Rivoltella [89a,89b], F. Rizatdinova [112], E. Rizvi [75], S.H. Robertson [85,k], A. Robichaud-Veronneau [118], D. Robinson [28], J.E.M. Robinson [82], A. Robson [53], J.G. Rocha de Lima [106], C. Roda [122a,122b], D. Roda Dos Santos [30], A. Roe [54], S. Roe [30], O. Røhne [117], S. Rolli [161], A. Romaniouk [96], M. Romano [20a,20b], G. Romeo [27], E. Romero Adam [167], N. Rompotis [138], L. Roos [78], E. Ros [167], S. Rosati [132a], K. Rosbach [49], A. Rose [149], M. Rose [76], G.A. Rosenbaum [158], E.I. Rosenberg [63], P.L. Rosendahl [14], [illegible] [49], V. Rossetti [12], E. Rossi [132a,132b], L.P. Rossi [50a], M. Rotaru [26a], I. Roth [172], [illegible] [115], C.R. Royon [136], A. Rozanov [83], Y. Rozen [152], X. Ruan [33a,ag], F. Rubbo [12], [illegible] [105], V.I. Rud [97], C. Rudolph [44], G. Rudolph [61], F. Rühr [7], A. Ruiz-Martinez [63],

L. Rumyantsev [64], Z. Rurikova [48], N.A. Rusakovich [64], J.P. Rutherfoord [7], P. Ruzicka [125], Y.F. Ryabov [121], M. Rybar [126], G. Rybkin [115], N.C. Ryder [118], A.F. Saavedra [150], I. Sadeh [153], H.F.-W. Sadrozinski [137], R. Sadykov [64], F. Safai Tehrani [132a], H. Sakamoto [155], G. Salamanna [75], A. Salamon [133a], M. Saleem [111], D. Salek [30], D. Salihagic [99], A. Salnikov [143], J. Salt [167], B.M. Salvachua Ferrando [6], D. Salvatore [37a,37b], F. Salvatore [149], A. Salvucci [104], A. Salzburger [30], D. Sampsonidis [154], B.H. Samset [117], A. Sanchez [102a,102b], V. Sanchez Martinez [167], H. Sandaker [14], H.G. Sander [81], M.P. Sanders [98], M. Sandhoff [175], T. Sandoval [28], C. Sandoval [162], R. Sandstroem [99], D.P.C. Sankey [129], A. Sansoni [47], C. Santamarina Rios [85], C. Santoni [34], R. Santonico [133a,133b], H. Santos [124a], J.G. Saraiva [124a], T. Sarangi [173], E. Sarkisyan-Grinbaum [8], F. Sarri [122a,122b], G. Sartisohn [175], O. Sasaki [65], Y. Sasaki [155], N. Sasao [67], I. Satsounkevitch [90], G. Sauvage [5,*], E. Sauvan [5], J.B. Sauvan [115], P. Savard [158,d], V. Savinov [123], D.O. Savu [30], L. Sawyer [25,m], D.H. Saxon [53], J. Saxon [120], C. Sbarra [20a], A. Sbrizzi [20a,20b], D.A. Scannicchio [163], M. Scarcella [150], J. Schaarschmidt [115], P. Schacht [99], D. Schaefer [120], U. Schäfer [81], A. Schaelicke [46], S. Schaepe [21], S. Schaetzel [58b], A.C. Schaffer [115], D. Schaile [98], R.D. Schamberger [148], A.G. Schamov [107], V. Scharf [58a], V.A. Schegelsky [121], D. Scheirich [87], M. Schernau [163], M.I. Scherzer [35], C. Schiavi [50a,50b], J. Schieck [98], M. Schioppa [37a,37b], S. Schlenker [30], P. Schmid [30], E. Schmidt [48], K. Schmieden [21], C. Schmitt [81], S. Schmitt [58b], M. Schmitz [21], B. Schneider [17], U. Schnoor [44], L. Schoeffel [136], A. Schoening [58b], A.L.S. Schorlemmer [54], M. Schott [30], D. Schouten [159a], J. Schovancova [125], M. Schram [85], C. Schroeder [81], N. Schroer [58c], M.J. Schultens [21], J. Schultes [175], H.-C. Schultz-Coulon [58a], H. Schulz [16], M. Schumacher [48], B.A. Schumm [137], Ph. Schune [136], C. Schwanenberger [82], A. Schwartzman [143], Ph. Schwegler [99], Ph. Schwemling [78], R. Schwienhorst [88], R. Schwierz [44], J. Schwindling [136], T. Schwindt [21], M. Schwoerer [5], G. Sciolla [23], W.G. Scott [129], J. Searcy [114], G. Sedov [42], E. Sedykh [121], S.C. Seidel [103], A. Seiden [137], F. Seifert [44], J.M. Seixas [24a], G. Sekhniaidze [102a], S.J. Sekula [40], K.E. Selbach [46], D.M. Seliverstov [121], B. Sellden [146a], G. Sellers [73], M. Seman [144b], N. Semprini-Cesari [20a,20b], C. Serfon [98], L. Serin [115], L. Serkin [54], R. Seuster [159a], H. Severini [111], A. Sfyrla [30], E. Shabalina [54], M. Shamim [114], L.Y. Shan [33a], J.T. Shank [22], Q.T. Shao [86], M. Shapiro [15], P.B. Shatalov [95], K. Shaw [164a,164c], D. Sherman [176], P. Sherwood [77], S. Shimizu [101], M. Shimojima [100], T. Shin [56], M. Shiyakova [64], A. Shmeleva [94], M.J. Shochet [31], D. Short [118], S. Shrestha [63], E. Shulga [96], M.A. Shupe [7], P. Sicho [125], A. Sidoti [132a], F. Siegert [48], Dj. Sijacki [13a], O. Silbert [172], J. Silva [124a], Y. Silver [153], D. Silverstein [143], S.B. Silverstein [146a], V. Simak [127], O. Simard [136], Lj. Simic [13a], S. Simion [115], E. Simioni [81], B. Simmons [77], R. Simoniello [89a,89b], M. Simonyan [36], P. Sinervo [158], N.B. Sinev [114], V. Sipica [141], G. Siragusa [174], A. Sircar [25], A.N. Sisakyan [64,*], S.Yu. Sivoklokov [97], J. Sjölin [146a,146b], T.B. Sjursen [14], L.A. Skinnari [15], H.P. Skottowe [57], K. Skovpen [107], P. Skubic [111], M. Slater [18], T. Slavicek [127], K. Sliwa [161], V. Smakhtin [172], B.H. Smart [46], L. Smestad [117], S.Yu. Smirnov [96], Y. Smirnov [96], L.N. Smirnova [97], O. Smirnova [79], B.C. Smith [57], D. Smith [143], K.M. Smith [53], M. Smizanska [71], K. Smolek [127], A.A. Snesarev [94], S.W. Snow [82], J. Snow [111], S. Snyder [25], R. Sobie [169,k], J. Sodomka [127], A. Soffer [153], C.A. Solans [167], M. Solar [127], J. Solc [127], E.Yu. Soldatov [96], U. Soldevila [167], E. Solfaroli Camillocci [132a,132b], A.A. Solodkov [128], O.V. Solovyanov [128], V. Solovyev [121], N. Soni [1], V. Sopko [127], B. Sopko [127], M. Sosebee [8], R. Soualah [164a,164c], A. Soukharev [107], S. Spagnolo [72a,72b], F. Spanò [76], W.R. Spearman [57], R. Spighi [20a], G. Spigo [30], R. Spiwoks [30], M. Spousta [126,ah], T. Spreitzer [158], B. Spurlock [8], R.D. St. Denis [53], J. Stahlman [120], R. Stamen [58a], E. Stanecka [39], R.W. Stanek [6], C. Stanescu [134a], M. Stanescu-Bellu [42], M.M. Stanitzki [42], S. Stapnes [117], E.A. Starchenko [128], J. Stark [55], P. Staroba [125], P. Starovoitov [42], R. Staszewski [39], A. Staude [98], P. Stavina [144a,*], G. Steele [53], P. Steinbach [44], P. Steinberg [25], I. Stekl [127], B. Stelzer [142], H.J. Stelzer [88], O. Stelzer-Chilton [159a], H. Stenzel [52], S. Stern [99], G.A. Stewart [30], J.A. Stillings [21], M.C. Stockton [85], K. Stoerig [48], G. Stoicea [26a], S. Stonjek [99], P. Strachota [126], A.R. Stradling [8], A. Straessner [44], J. Strandberg [147], S. Strandberg [146a,146b], A. Strandlie [117], M. Strang [109], E. Strauss [143], M. Strauss [111], P. Strizenec [144b], R. Ströhmer [174], D.M. Strom [114], J.A. Strong [76,*], R. Stroynowski [40], B. Stugu [14], I. Stumer [25,*], J. Stupak [148], P. Sturm [175], N.A. Styles [42], D.A. Soh [151,u], D. Su [143], HS. Subramania [3], R. Subramaniam [25], A. Succurro [12], Y. Sugaya [116], C. Suhr [106], M. Suk [126], V.V. Sulin [94], S. Sultansoy [4d], T. Sumida [67], X. Sun [55], J.E. Sundermann [48], K. Suruliz [139], G. Susinno [37a,37b], M.R. Sutton [149], Y. Suzuki [65], Y. Suzuki [66], M. Svatos [125], S. Swedish [168], I. Sykora [144a], T. Sykora [126], J. Sánchez [167], D. Ta [105], K. Tackmann [42], A. Taffard [163], R. Tafirout [159a], N. Taiblum [153], Y. Takahashi [101], H. Takai [25], R. Takashima [68], H. Takeda [66], T. Takeshita [140], Y. Takubo [65], M. Talby [83], A. Talyshev [107,f], M.C. Tamsett [25], K.G. Tan [86], J. Tanaka [155], R. Tanaka [115], S. Tanaka [131], S. Tanaka [65], A.J. Tanasijczuk [142],

Wakeley

Authorship: ATLAS Names 9, 10

K. Tani [66], N. Tannoury [83], S. Tapprogge [81], D. Tardif [158], S. Tarem [152], F. Tarrade [29], G.F. Tartarelli [89a], P. Tas [126], M. Tasevsky [125], E. Tassi [37a,37b], M. Tatarkhanov [15], Y. Tayalati [135d], C. Taylor [77], F.E. Taylor [92], G.N. Taylor [86], W. Taylor [159b], M. Teinturier [115], F.A. Teischinger [30], M. Teixeira Dias Castanheira [75], P. Teixeira-Dias [76], K.K. Temming [48], H. Ten Kate [30], P.K. Teng [151], S. Terada [65], K. Terashi [155], J. Terron [80], M. Testa [47], R.J. Teuscher [158,k], J. Therhaag [21], T. Theveneaux-Pelzer [78], S. Thoma [48], J.P. Thomas [18], E.N. Thompson [35], P.D. Thompson [18], A.S. Thompson [53], L.A. Thomsen [36], E. Thomson [120], M. Thomson [28], W.M. Thong [86], R.P. Thun [87], F. Tian [35], M.J. Tibbetts [15], T. Tic [125], V.O. Tikhomirov [94], Ya.A. Tikhonov [107,f], S. Timoshenko [96], E. Tiouchichine [83], P. Tipton [176], S. Tisserant [83], T. Todorov [5], S. Todorova-Nova [161], B. Toggerson [163], J. Tojo [69], S. Tokár [144a], K. Tokushuku [65], K. Tollefson [88], M. Tomoto [101], L. Tompkins [31], K. Toms [103], A. Tonoyan [14], C. Topfel [17], N.D. Topilin [64], I. Torchiani [30], E. Torrence [114], H. Torres [78], E. Torró Pastor [167], J. Toth [83,ad], F. Touchard [83], D.R. Tovey [139], T. Trefzger [174], L. Tremblet [30], A. Tricoli [30], I.M. Trigger [159a], G. Trilling [15], S. Trincaz-Duvoid [78], M.F. Tripiana [70], N. Triplett [25], W. Trischuk [158], B. Trocmé [55], C. Troncon [89a], M. Trottier-McDonald [142], M. Trzebinski [39], A. Trzupek [39], C. Tsarouchas [30], J.C.-L. Tseng [118], M. Tsiakiris [105], P.V. Tsiareshka [90], D. Tsionou [5,ai], G. Tsipolitis [10], S. Tsiskaridze [12], V. Tsiskaridze [48], E.G. Tskhadadze [51a], I.I. Tsukerman [95], V. Tsulaia [15], J.-W. Tsung [21], S. Tsuno [65], D. Tsybychev [148], A. Tua [139], A. Tudorache [26a], V. Tudorache [26a], J.M. Tuggle [31], M. Turala [39], D. Turecek [127], I. Turk Cakir [4e], E. Turlay [105], R. Turra [89a,89b], P.M. Tuts [35], A. Tykhonov [74], M. Tylmad [146a,146b], M. Tyndel [129], G. Tzanakos [9], K. Uchida [21], I. Ueda [155], R. Ueno [29], M. Ugland [14], M. Uhlenbrock [21], M. Uhrmacher [54], F. Ukegawa [160], G. Unal [30], A. Undrus [25], G. Unel [163], Y. Unno [65], D. Urbaniec [35], P. Urquijo [21], G. Usai [8], M. Uslenghi [119a,119b], L. Vacavant [83], V. Vacek [127], B. Vachon [85], S. Vahsen [15], J. Valenta [125], S. Valentinetti [20a,20b], A. Valero [167], S. Valkar [126], E. Valladolid Gallego [167], S. Vallecorsa [152], J.A. Valls Ferrer [167], R. Van Berg [120], P.C. Van Der Deijl [105], R. van der Geer [105], H. van der Graaf [105], R. Van Der Leeuw [105], E. van der Poel [105], D. van der Ster [30], N. van Eldik [30], P. van Gemmeren [6], I. van Vulpen [105], M. Vanadia [99], W. Vandelli [30], R. Vanguri [120], A. Vaniachine [6], P. Vankov [42], F. Vannucci [78], R. Vari [132a], T. Varol [84], D. Varouchas [15], A. Vartapetian [8], K.E. Varvell [150], V.I. Vassilakopoulos [56], F. Vazeille [34], T. Vazquez Schroeder [54], G. Vegni [89a,89b], J.J. Veillet [115], F. Veloso [124a], R. Veness [30], S. Veneziano [132a], A. Ventura [72a,72b], D. Ventura [84], M. Venturi [48], N. Venturi [158], V. Vercesi [119a], M. Verducci [138], W. Verkerke [105], J.C. Vermeulen [105], A. Vest [44], M.C. Vetterli [142,d], I. Vichou [165], T. Vickey [145b,aj], O.E. Vickey Boeriu [145b], G.H.A. Viehhauser [118], S. Viel [168], M. Villa [20a,20b], M. Villaplana Perez [167], E. Vilucchi [47], M.G. Vincter [29], E. Vinek [30], V.B. Vinogradov [64], M. Virchaux [136,*], J. Virzi [15], O. Vitells [172], M. Viti [42], I. Vivarelli [48], F. Vives Vaque [3], S. Vlachos [10], D. Vladoiu [98], M. Vlasak [127], A. Vogel [21], P. Vokac [127], G. Volpi [47], M. Volpi [86], G. Volpini [89a], H. von der Schmitt [99], H. von Radziewski [48], E. von Toerne [21], V. Vorobel [126], V. Vorwerk [12], M. Vos [167], R. Voss [30], T.T. Voss [175], J.H. Vossebeld [73], N. Vranjes [136], M. Vranjes Milosavljevic [105], V. Vrba [125], M. Vreeswijk [105], T. Vu Anh [48], R. Vuillermet [30], I. Vukotic [31], W. Wagner [175], P. Wagner [120], H. Wahlen [175], S. Wahrmund [44], J. Wakabayashi [101], S. Walch [87], J. Walder [71], R. Walker [98], W. Walkowiak [141], R. Wall [176], P. Waller [73], B. Walsh [176], C. Wang [45], F. Wang [173], H. Wang [173], H. Wang [33b,ak], J. Wang [151], J. Wang [55], R. Wang [103], S.M. Wang [151], T. Wang [21], A. Warburton [85], C.P. Ward [28], D.R. Wardrope [77], M. Warsinsky [48], A. Washbrook [46], C. Wasicki [42], I. Watanabe [66], P.M. Watkins [18], A.T. Watson [18], I.J. Watson [150], M.F. Watson [18], G. Watts [138], S. Watts [82], A.T. Waugh [150], B.M. Waugh [77], M.S. Weber [17], P. Weber [54], J.S. Webster [31], A.R. Weidberg [118], P. Weigell [99], J. Weingarten [54], C. Weiser [48], P.S. Wells [30], T. Wenaus [25], D. Wendland [16], Z. Weng [151,u], T. Wengler [30], S. Wenig [30], N. Wermes [21], M. Werner [48], P. Werner [30], M. Werth [163], M. Wessels [58a], J. Wetter [161], C. Weydert [55], K. Whalen [29], S.J. Wheeler-Ellis [163], A. White [8], M.J. White [86], S. White [122a,122b], S.R. Whitehead [118], D. Whiteson [163], D. Whittington [60], F. Wicek [115], D. Wicke [175], F.J. Wickens [129], W. Wiedenmann [173], M. Wielers [129], P. Wienemann [21], C. Wiglesworth [75], L.A.M. Wiik-Fuchs [48], P.A. Wijeratne [77], A. Wildauer [99], M.A. Wildt [42,r], I. Wilhelm [126], H.G. Wilkens [30], J.Z. Will [98], E. Williams [35], H.H. Williams [120], W. Willis [35], S. Willocq [84], J.A. Wilson [18], M.G. Wilson [143], A. Wilson [87], I. Wingerter-Seez [5], S. Winkelmann [48], F. Winklmeier [30], M. Wittgen [143], S.J. Wollstadt [81], M.W. Wolter [39], H. Wolters [124a,h], W.C. Wong [41], G. Wooden [87], B.K. Wosiek [39], J. Wotschack [30], [illegible]ozniak [39], K. Wraight [53], M. Wright [53], B. Wrona [73], S.L. Wu [173], X. Wu [49], [illegible]M. Wynne [46], S. Xella [36], M. Xiao [136], S. Xie [48], C. Xu [33b,z], D. Xu [139], [illegible]45a,am], M. Yamada [65], H. Yamaguchi [155], Y. Yamaguchi [155], A. Yamamoto [65],

Wakeley

K. Yamamoto [63], S. Yamamoto [155], T. Yamamura [155], T. Yamanaka [155], T. Yamazaki [155], Y. Yamazaki [66], Z. Yan [22], H. Yang [87], H. Yang [173], U.K. Yang [82], Y. Yang [109], Z. Yang [146a,146b], S. Yanush [91], L. Yao [33a], Y. Yao [15], Y. Yasu [65], G.V. Ybeles Smit [130], J. Ye [40], S. Ye [25], M. Yilmaz [4c], R. Yoosoofmiya [123], K. Yorita [171], R. Yoshida [6], K. Yoshihara [155], C. Young [141], C.J. Young [118], S. Youssef [22], D. Yu [25], J. Yu [8], J. Yu [112], L. Yuan [66], A. Yurkewicz [106], M. Byszewski [30], B. Zabinski [39], R. Zaidan [62], A.M. Zaitsev [128], Z. Zajacova [30], L. Zanello [132a,132b], D. Zanzi [99], A. Zaytsev [25], C. Zeitnitz [175], M. Zeman [125], A. Zemla [39], C. Zendler [21], O. Zenin [128], T. Ženiš [144a], Z. Zinonos [122a,122b], D. Zerwas [115], G. Zevi della Porta [57], D. Zhang [33b,ak], H. Zhang [88], J. Zhang [6], X. Zhang [33d], Z. Zhang [115], L. Zhao [108], Z. Zhao [33b], A. Zhemchugov [64], J. Zhong [118], B. Zhou [87], N. Zhou [163], Y. Zhou [151], C.G. Zhu [33d], H. Zhu [42], J. Zhu [87], Y. Zhu [33b], X. Zhuang [98], V. Zhuravlov [99], D. Zieminska [60], N.I. Zimin [64], R. Zimmermann [21], S. Zimmermann [21], S. Zimmermann [48], M. Ziolkowski [141], R. Zitoun [5], L. Živković [35], V.V. Zmouchko [128,*], G. Zobernig [173], A. Zoccoli [20a,20b], M. zur Nedden [16], V. Zutshi [106], L. Zwalinski [30]

[1] School of Chemistry and Physics, University of Adelaide, Adelaide, Australia
[2] Physics Department, SUNY Albany, Albany, NY, United States
[3] Department of Physics, University of Alberta, Edmonton, AB, Canada
[4] (a) Department of Physics, Ankara University, Ankara; (b) Department of Physics, Dumlupinar University, Kutahya; (c) Department of Physics, Gazi University, Ankara; (d) Division of Physics, TOBB University of Economics and Technology, Ankara; (e) Turkish Atomic Energy Authority, Ankara, Turkey
[5] LAPP, CNRS/IN2P3 and Université de Savoie, Annecy-le-Vieux, France
[6] High Energy Physics Division, Argonne National Laboratory, Argonne, IL, United States
[7] Department of Physics, University of Arizona, Tucson, AZ, United States
[8] Department of Physics, The University of Texas at Arlington, Arlington, TX, United States
[9] Physics Department, University of Athens, Athens, Greece
[10] Physics Department, National Technical University of Athens, Zografou, Greece
[11] Institute of Physics, Azerbaijan Academy of Sciences, Baku, Azerbaijan
[12] Institut de Física d'Altes Energies and Departament de Física de la Universitat Autònoma de Barcelona and ICREA, Barcelona, Spain
[13] (a) Institute of Physics, University of Belgrade, Belgrade; (b) Vinca Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
[14] Department for Physics and Technology, University of Bergen, Bergen, Norway
[15] Physics Division, Lawrence Berkeley National Laboratory and University of California, Berkeley, CA, United States
[16] Department of Physics, Humboldt University, Berlin, Germany
[17] Albert Einstein Center for Fundamental Physics and Laboratory for High Energy Physics, University of Bern, Bern, Switzerland
[18] School of Physics and Astronomy, University of Birmingham, Birmingham, United Kingdom
[19] (a) Department of Physics, Bogazici University, Istanbul; (b) Division of Physics, Dogus University, Istanbul; (c) Department of Physics Engineering, Gaziantep University, Gaziantep; (d) Department of Physics, Istanbul Technical University, Istanbul, Turkey
[20] (a) INFN Sezione di Bologna; (b) Dipartimento di Fisica, Università di Bologna, Bologna, Italy
[21] Physikalisches Institut, University of Bonn, Bonn, Germany
[22] Department of Physics, Boston University, Boston, MA, United States
[23] Department of Physics, Brandeis University, Waltham, MA, United States
[24] (a) Universidade Federal do Rio De Janeiro COPPE/EE/IF, Rio de Janeiro; (b) 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
[25] Physics Department, Brookhaven National Laboratory, Upton, NY, United States
[26] (a) National Institute of Physics and Nuclear Engineering, Bucharest; (b) University Politehnica Bucharest, Bucharest; (c) West University in Timisoara, Timisoara, Romania
[27] Departamento de Física, Universidad de Buenos Aires, Buenos Aires, Argentina
[28] Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom
[29] Department of Physics, Carleton University, Ottawa, ON, Canada
[30] CERN, Geneva, Switzerland
[31] Enrico Fermi Institute, University of Chicago, Chicago, IL, United States
[32] (a) Departamento de Física, Pontificia Universidad Católica de Chile, Santiago; (b) Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile
[33] (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, China
[34] Laboratoire de Physique Corpusculaire, Clermont Université and Université Blaise Pascal and CNRS/IN2P3, Clermont-Ferrand, France
[35] Nevis Laboratory, Columbia University, Irvington, NY, United States
[36] Niels Bohr Institute, University of Copenhagen, Kobenhavn, Denmark
[37] (a) INFN Gruppo Collegato di Cosenza; (b) Dipartimento di Fisica, Università della Calabria, Arcavata di Rende, Italy
[38] AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, Poland
[39] The Henryk Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland
[40] Physics Department, Southern Methodist University, Dallas, TX, United States
[41] Physics Department, University of Texas at Dallas, Richardson, TX, United States
[42] DESY, Hamburg and Zeuthen, Germany
[43] Institut für Experimentelle Physik IV, Technische Universität Dortmund, Dortmund, Germany
[44] Institut für Kern- und Teilchenphysik, Technical University Dresden, Dresden, Germany
[45] Department of Physics, Duke University, Durham, NC, United States
[46] SUPA – School of Physics and Astronomy, University of Edinburgh, Edinburgh, United Kingdom
[47] INFN Laboratori Nazionali di Frascati, Frascati, Italy
[48] Fakultät für Mathematik und Physik, Albert-Ludwigs-Universität, Freiburg, Germany
[49] Section de Physique, Université de Genève, Geneva, Switzerland
[50] (a) INFN Sezione di Genova; (b) Dipartimento di Fisica, Università di Genova, Genova, Italy
[51] (a) E. Andronikashvili Institute of Physics, Tbilisi State University, Tbilisi; (b) High Energy Physics Institute, Tbilisi State University, Tbilisi, Georgia
[52] II Physikalisches Institut, Justus-Liebig-Universität Giessen, Giessen, Germany
[53] SUPA – School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom
[54] II Physikalisches Institut, Georg-August-Universität, Göttingen, Germany
[55] Laboratoire de Physique Subatomique et de Cosmologie, Université Joseph Fourier and CNRS/IN2P3 and Institut National Polytechnique de Grenoble, Grenoble, France
[56] Department of Physics, Hampton University, Hampton, VA, United States

Authorship: ATLAS Affiliations, cont.

[57] Laboratory for Particle Physics and Cosmology, Harvard University, Cambridge, MA, United States
[58] [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
[59] Faculty of Applied Information Science, Hiroshima Institute of Technology, Hiroshima, Japan
[60] Department of Physics, Indiana University, Bloomington, IN, United States
[61] Institut für Astro- und Teilchenphysik, Leopold-Franzens-Universität, Innsbruck, Austria
[62] University of Iowa, Iowa City, IA, United States
[63] Department of Physics and Astronomy, Iowa State University, Ames, IA, United States
[64] Joint Institute for Nuclear Research, JINR Dubna, Dubna, Russia
[65] KEK, High Energy Accelerator Research Organization, Tsukuba, Japan
[66] Graduate School of Science, Kobe University, Kobe, Japan
[67] Faculty of Science, Kyoto University, Kyoto, Japan
[68] Kyoto University of Education, Kyoto, Japan
[69] Department of Physics, Kyushu University, Fukuoka, Japan
[70] Instituto de Física La Plata, Universidad Nacional de La Plata and CONICET, La Plata, Argentina
[71] Physics Department, Lancaster University, Lancaster, United Kingdom
[72] [a] INFN Sezione di Lecce; [b] Dipartimento di Matematica e Fisica, Università del Salento, Lecce, Italy
[73] Oliver Lodge Laboratory, University of Liverpool, Liverpool, United Kingdom
[74] Department of Physics, Jožef Stefan Institute and University of Ljubljana, Ljubljana, Slovenia
[75] School of Physics and Astronomy, Queen Mary University of London, London, United Kingdom
[76] Department of Physics, Royal Holloway University of London, Surrey, United Kingdom
[77] Department of Physics and Astronomy, University College London, London, United Kingdom
[78] Laboratoire de Physique Nucléaire et de Hautes Energies, UPMC and Université Paris-Diderot and CNRS/IN2P3, Paris, France
[79] Fysiska institutionen, Lunds universitet, Lund, Sweden
[80] Departamento de Física Teorica C-15, Universidad Autonoma de Madrid, Madrid, Spain
[81] Institut für Physik, Universität Mainz, Mainz, Germany
[82] School of Physics and Astronomy, University of Manchester, Manchester, United Kingdom
[83] CPPM, Aix-Marseille Université and CNRS/IN2P3, Marseille, France
[84] Department of Physics, University of Massachusetts, Amherst, MA, United States
[85] Department of Physics, McGill University, Montreal, QC, Canada
[86] School of Physics, University of Melbourne, Victoria, Australia
[87] Department of Physics, The University of Michigan, Ann Arbor, MI, United States
[88] Department of Physics and Astronomy, Michigan State University, East Lansing, MI, United States
[89] [a] INFN Sezione di Milano; [b] Dipartimento di Fisica, Università di Milano, Milano, Italy
[90] B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus
[91] National Scientific and Educational Centre for Particle and High Energy Physics, Minsk, Belarus
[92] Department of Physics, Massachusetts Institute of Technology, Cambridge, MA, United States
[93] Group of Particle Physics, University of Montreal, Montreal, QC, Canada
[94] P.N. Lebedev Institute of Physics, Academy of Sciences, Moscow, Russia
[95] Institute for Theoretical and Experimental Physics (ITEP), Moscow, Russia
[96] Moscow Engineering and Physics Institute (MEPhI), Moscow, Russia
[97] Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow, Russia
[98] Fakultät für Physik, Ludwig-Maximilians-Universität München, München, Germany
[99] Max-Planck-Institut für Physik (Werner-Heisenberg-Institut), München, Germany
[100] Nagasaki Institute of Applied Science, Nagasaki, Japan
[101] Graduate School of Science and Kobayashi-Maskawa Institute, Nagoya University, Nagoya, Japan
[102] [a] INFN Sezione di Napoli; [b] Dipartimento di Scienze Fisiche, Università di Napoli, Napoli, Italy
[103] Department of Physics and Astronomy, University of New Mexico, Albuquerque, NM, United States
[104] Institute for Mathematics, Astrophysics and Particle Physics, Radboud University Nijmegen/Nikhef, Nijmegen, Netherlands
[105] Nikhef National Institute for Subatomic Physics and University of Amsterdam, Amsterdam, Netherlands
[106] Department of Physics, Northern Illinois University, DeKalb, IL, United States
[107] Budker Institute of Nuclear Physics, SB RAS, Novosibirsk, Russia
[108] Department of Physics, New York University, New York, NY, United States
[109] Ohio State University, Columbus, OH, United States
[110] Faculty of Science, Okayama University, Okayama, Japan
[111] Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman, OK, United States
[112] Department of Physics, Oklahoma State University, Stillwater, OK, United States
[113] Palacký University, RCPTM, Olomouc, Czech Republic
[114] Center for High Energy Physics, University of Oregon, Eugene, OR, United States
[115] LAL, Université Paris-Sud and CNRS/IN2P3, Orsay, France
[116] Graduate School of Science, Osaka University, Osaka, Japan
[117] Department of Physics, University of Oslo, Oslo, Norway
[118] Department of Physics, Oxford University, Oxford, United Kingdom
[119] [a] INFN Sezione di Pavia; [b] Dipartimento di Fisica, Università di Pavia, Pavia, Italy
[120] Department of Physics, University of Pennsylvania, Philadelphia PA, United States
[121] Petersburg Nuclear Physics Institute, Gatchina, Russia
[122] [a] INFN Sezione di Pisa; [b] Dipartimento di Fisica E. Fermi, Università di Pisa, Pisa, Italy
[123] Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA, United States
[124] [a] Laboratorio de Instrumentacao e Fisica Experimental de Particulas – LIP, Lisboa, Portugal; [b] Departamento de Fisica Teorica y del Cosmos and CAFPE, Universidad de Granada, Granada, Spain
[125] Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czech Republic
[126] Faculty of Mathematics and Physics, Charles University in Prague, Praha, Czech Republic
[127] Czech Technical University in Prague, Praha, Czech Republic
[128] State Research Center Institute for High Energy Physics, Protvino, Russia
[129] [illegible]ppleton Laboratory, Didcot, United Kingdom
[130] [illegible]Regina, SK, Canada
[131] [illegible]on
[132] [illegible]o di Fisica, Università La Sapienza, Roma, Italy
[133] [illegible]partimento di Fisica, Università di Roma Tor Vergata, Roma, Italy

[134] [a] INFN Sezione di Roma Tre; [b] Dipartimento di Fisica, Università Roma Tre, Roma, Italy
[135] [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 Nucléaires, 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
[136] DSM/IRFU (Institut de Recherches sur les Lois Fondamentales de l'Univers), CEA Saclay (Commissariat a l'Energie Atomique), Gif-sur-Yvette, France
[137] Santa Cruz Institute for Particle Physics, University of California Santa Cruz, Santa Cruz, CA, United States
[138] Department of Physics, University of Washington, Seattle, WA, United States
[139] Department of Physics and Astronomy, University of Sheffield, Sheffield, United Kingdom
[140] Department of Physics, Shinshu University, Nagano, Japan
[141] Fachbereich Physik, Universität Siegen, Siegen, Germany
[142] Department of Physics, Simon Fraser University, Burnaby, BC, Canada
[143] SLAC National Accelerator Laboratory, Stanford, CA, United States
[144] [a] Faculty of Mathematics, Physics & Informatics, Comenius University, Bratislava, Slovak Republic; [b] Department of Subnuclear Physics, Institute of Experimental Physics of the Slovak Academy of Sciences, Kosice, Slovak Republic
[145] [a] Department of Physics, University of Johannesburg, Johannesburg; [b] School of Physics, University of the Witwatersrand, Johannesburg, South Africa
[146] [a] Department of Physics, Stockholm University; [b] The Oskar Klein Centre, Stockholm, Sweden
[147] Physics Department, Royal Institute of Technology, Stockholm, Sweden
[148] Departments of Physics & Astronomy and Chemistry, Stony Brook University, Stony Brook, NY, United States
[149] Department of Physics and Astronomy, University of Sussex, Brighton, United Kingdom
[150] School of Physics, University of Sydney, Sydney, Australia
[151] Institute of Physics, Academia Sinica, Taipei, Taiwan
[152] Department of Physics, Technion: Israel Institute of Technology, Haifa, Israel
[153] Raymond and Beverly Sackler School of Physics and Astronomy, Tel Aviv University, Tel Aviv, Israel
[154] Department of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece
[155] International Center for Elementary Particle Physics and Department of Physics, The University of Tokyo, Tokyo, Japan
[156] Graduate School of Science and Technology, Tokyo Metropolitan University, Tokyo, Japan
[157] Department of Physics, Tokyo Institute of Technology, Tokyo, Japan
[158] Department of Physics, University of Toronto, Toronto, ON, Canada
[159] [a] TRIUMF, Vancouver, BC; [b] Department of Physics and Astronomy, York University, Toronto, ON, Canada
[160] Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan
[161] Department of Physics and Astronomy, Tufts University, Medford, MA, United States
[162] Centro de Investigaciones, Universidad Antonio Narino, Bogota, Colombia
[163] Department of Physics and Astronomy, University of California Irvine, Irvine, CA, United States
[164] [a] INFN Gruppo Collegato di Udine; [b] ICTP, Trieste; [c] Dipartimento di Chimica, Fisica e Ambiente, Università di Udine, Udine, Italy
[165] Department of Physics, University of Illinois, Urbana, IL, United States
[166] Department of Physics and Astronomy, University of Uppsala, Uppsala, Sweden
[167] Instituto de Física Corpuscular (IFIC) and Departamento de Física Atómica, Molecular y Nuclear and Departamento de Ingeniería Electrónica and Instituto de Microelectrónica de Barcelona (IMB-CNM), University of Valencia and CSIC, Valencia, Spain
[168] Department of Physics, University of British Columbia, Vancouver, BC, Canada
[169] Department of Physics and Astronomy, University of Victoria, Victoria, BC, Canada
[170] Department of Physics, University of Warwick, Coventry, United Kingdom
[171] Waseda University, Tokyo, Japan
[172] Department of Particle Physics, The Weizmann Institute of Science, Rehovot, Israel
[173] Department of Physics, University of Wisconsin, Madison, WI, United States
[174] Fakultät für Physik und Astronomie, Julius-Maximilians-Universität, Würzburg, Germany
[175] Fachbereich C Physik, Bergische Universität Wuppertal, Wuppertal, Germany
[176] Department of Physics, Yale University, New Haven, CT, United States
[177] Yerevan Physics Institute, Yerevan, Armenia
[178] Centre de Calcul de l'Institut National de Physique Nucléaire et de Physique des Particules (IN2P3), Villeurbanne, France

[a] Also at Laboratorio de Instrumentacao e Fisica Experimental de Particulas – LIP, Lisboa, Portugal.
[b] Also at Faculdade de Ciencias and CFNUL, Universidade de Lisboa, Lisboa, Portugal.
[c] Also at Particle Physics Department, Rutherford Appleton Laboratory, Didcot, United Kingdom.
[d] Also at TRIUMF, Vancouver, BC, Canada.
[e] Also at Department of Physics, California State University, Fresno, CA, United States.
[f] Also at Novosibirsk State University, Novosibirsk, Russia.
[g] Also at Fermilab, Batavia, IL, United States.
[h] Also at Department of Physics, University of Coimbra, Coimbra, Portugal.
[i] Also at Department of Physics, UASLP, San Luis Potosi, Mexico.
[j] Also at Università di Napoli Parthenope, Napoli, Italy.
[k] Also at Institute of Particle Physics (IPP), Canada.
[l] Also at Department of Physics, Middle East Technical University, Ankara, Turkey.
[m] Also at Louisiana Tech University, Ruston, LA, United States.
[n] Also at Dep Fisica and CEFITEC of Faculdade de Ciencias e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal.
[o] Also at Department of Physics and Astronomy, University College London, London, United Kingdom.
[p] Also at Department of Physics, University of Cape Town, Cape Town, South Africa.
[q] Also at Institute of Physics, Azerbaijan Academy of Sciences, Baku, Azerbaijan.
[r] Also at Institut für Experimentalphysik, Universität Hamburg, Hamburg, Germany.
[s] Also at Manhattan College, New York, NY, United States.
[t] Also at CPPM, Aix-Marseille Université and CNRS/IN2P3, Marseille, France.
[u] Also at School of Physics and Engineering, Sun Yat-sen University, Guanzhou, China.
[v] Also at Academia Sinica Grid Computing, Institute of Physics, Academia Sinica, Taipei, Taiwan.
[w] Also at Laboratoire de Physique Nucléaire et de Hautes Energies, UPMC and Université Paris-Diderot and CNRS/IN2P3, Paris, France.
[x] Also at School of Physics, Shandong University, Shandong, China.
[y] Also at Dipartimento di Fisica, Università La Sapienza, Roma, Italy.
[z] Also at DSM/IRFU (Institut de Recherches sur les Lois Fondamentales de l'Univers), CEA Saclay (Commissariat a l'Energie Atomique), Gif-sur-Yvette, France.
[aa] Also at Section de Physique, Université de Genève, Geneva, Switzerland.

Wakeley

Authorship: What does it mean?

- ***What criteria for authorship?***
- **Conducting the experiment**
- **Designing the experiment**
- **Writing the manuscript**
- **Editing the manuscript**
- **Analyzing the data**
- **Providing samples/data**
- **Any substantial intellectual contribution**
- **Being the PI**

(1/15/2013 course whiteboard answers)

Wakeley

Authorship: What does it mean?

- **International Committee of Medical Journal Editors:**
- **(perhaps one of the most rigorous statements on authorship)**

- **"Authorship credit should be based on**
  1. **Substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;**
  2. **Drafting the article or revising it critically for important intellectual content; and**
  3. **Final approval of the version to be published.**

  Authors should meet conditions 1, 2 and 3."

http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html

Authorship: Clarifying Contributions

- **A common approach to determining the "worthiness" of co-authorship:**
  - **"the subtraction assay"**
  - **If you remove a given person and their contribution from a paper, would the work have been:**
    - **As impactful?**
    - **As understandable or complete?**
    - **As timely?**
    - **Exist at all?**

Authorship: Clarifying Contributions

- **What were the contributions of each author to the paper?**
- ***"If scientists want to convey this information by the way their names are ordered, the method is similar to sending smoke signals, in code, on a dark, windy night."***

  --Drummond Rennie, Deputy Editor, JAMA
- **Nowadays, often see "authorship statements"**

In the present paper, a solution to this problem will be presented together with Monte Carlo experiments to test some of the theoretical results. Throughout this paper, the senior author (M. K.) is responsible for the mathematical treatments, while the junior author (T. O.) is responsible for the numerical treatments based on computers.

Kimura and Ohta (1969) *Genetics* **61**:763-771

Authorship:
To avoid conflicts, make a plan

1. **Have a clear authorship policy.**
2. **Discuss and document projected individual contributions and provisional authorship, ideally at the start of the project.**
3. **Review contributions as the work progresses, revise roles and authorship accordingly until journal submission.**
4. **Maintain a descriptive authorship contribution list.**
5. **Document the reasons for author additions and deletions, and get agreement for changes from all individuals.**
6. **Make sure all authors see and approve the final manuscript.**

- ***http://projects.iq.harvard.edu/attribution_workshop***

Authorship: Open Access Obligations

- Harvard maintains an open-access repository for faculty publications (Digital Access to Scholarship at Harvard or DASH).
- "By means of Harvard's Open Access Policy, faculty authors in participating schools grant the university a nonexclusive, irrevocable right to distribute their scholarly articles for any non-commercial purpose." (appears to be Harvard-wide; all schools)
  - *https://osc.hul.harvard.edu/policies*

- "The NIH Public Access Policy ensures that the public has access to the published results of NIH funded research. It requires scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds to the digital archive PubMed Central *immediately upon acceptance for publication*."
  - *https://publicaccess.nih.gov*

U.S. Department of Health & Human Services

NIH National Institutes of Health
Office of Extramural Research

Search

Glossary & Acronyms

HOME | ABOUT GRANTS | FUNDING | FORMS & DEADLINES | GRANTS POLICY | eRA | NEWS & EVENTS | ABOUT OER

Grants & Funding

Grants Policy

- Policy & Guidance
- Compliance & Oversight
- Research Involving Human Subjects
- Office of Laboratory Animal Welfare (OLAW)
- Animals in Research
- Peer Review Policies & Practices
- Intellectual Property Policy
- Acknowledging NIH Funding
- Invention Reporting (iEdison)
- NIH Public Access
- Research Integrity

Peer Review Policies & Practices

On This Page:

- What's New in Peer Review
- Information for Reviewers
- Information for Applicants
- Advisory Councils or Boards

"To maintain our edge . . . we've got to protect our rigorous peer review system and ensure that we only fund proposals that promise the biggest bang for taxpayer dollars . . . that's what's going to maintain our standards of scientific excellence for years to come."

Remarks by President Barack Obama on the 150th Anniversary of the National Academy of Sciences, April 29, 2013

Related Resources

- Peer Review Intranet (NIH Staff)
- Core Values of NIH Peer Review
- Video: NIH Peer Review Process Revealed
- Peer Review Notes
- Frequently Asked Questions
- Rosters of NIH Scientific Review Groups
- Office of Federal Advisory Committee Policy (Advisory Council information)
- Enhancing Peer Review
- Continuous Review of Peer Review
- Related Archives

What's New in Peer Review

Friday, April 25, 2014

Updated Submission Policy. The NIH announced an updated policy for application submissions that allows applicants to come in with a new application after an unsuccessful resubmission. See NOT-OD-14-074 and NOT-OD-14-082, and FAQs on application submission.

Research Training Programs. Following recommendations of the Biomedical Research Workforce Task Force, the NIH is implementing changes to the review criteria used to evaluate applications for fellowships, career development awards, and training grants. See the Guidelines and Fill-able Templates for Reviewers.

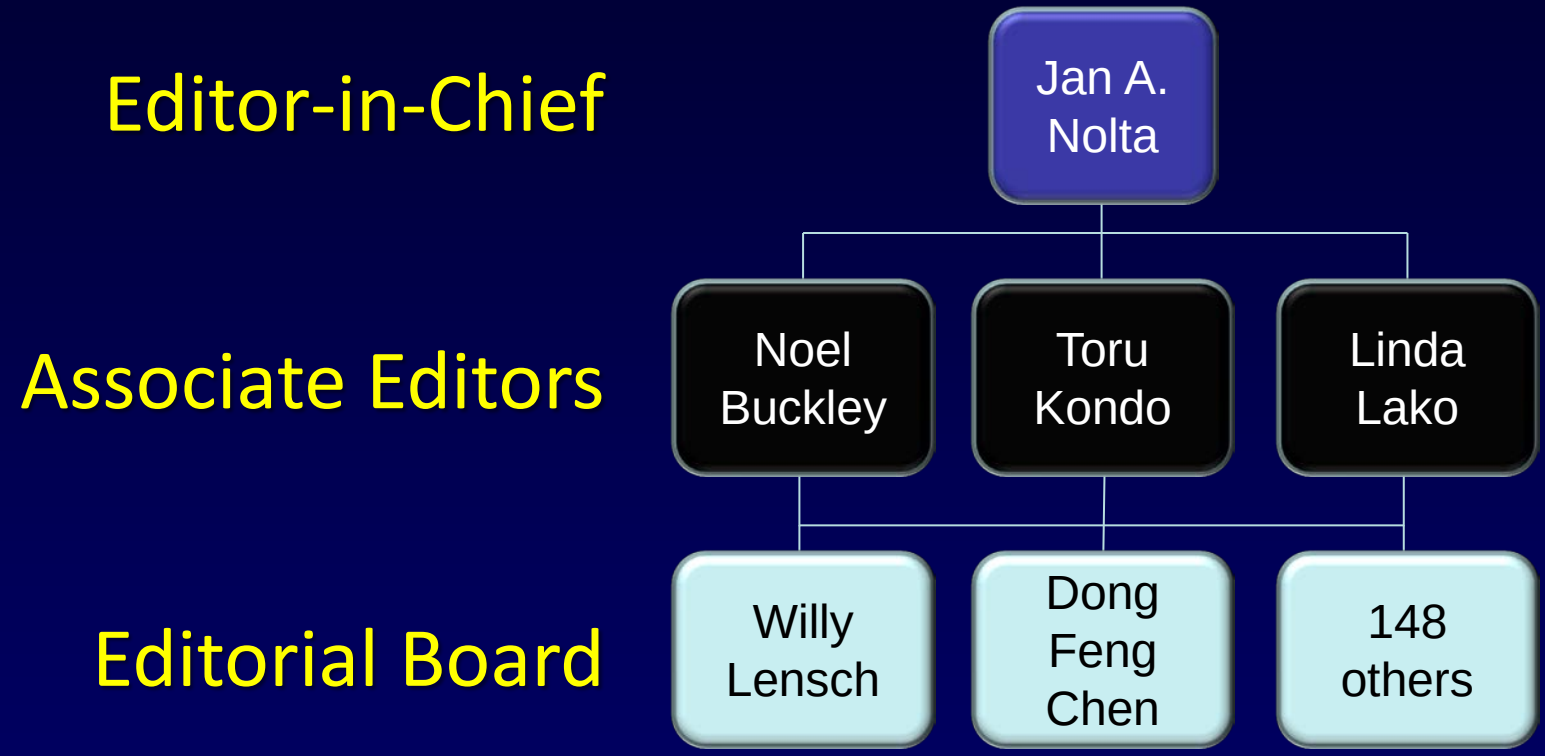
Thursday, Feb. 6

http://grants.nih.gov/grants/peer/peer.htm

What is peer review?

"… is the evaluation of work by one or more people of similar competence to the producers of the work (peers)."

Peer Review:
e.g., Editorial Structure at Stem Cells



- Associate editors solicit one member of the Editorial Board to serve as the primary referee for a submission and to assign 2 or 3 primary reviewers.
- Reviewers provide their candid assessment of the quality, importance, and novelty of the work, but are not supposed to make editorial decisions.

Modified from Wakeley

Peer Review: Common Issues and Concerns

Have any of the following ever happened to you during the peer review process?	
	% Yes
A reviewer was incompetent	61.8
A reviewer was biased	50.5
A reviewer required you to include unnecessary references to his/her publication(s)	22.7
Comments from reviewers included personal attacks	17.7
A reviewer delayed the review so that he/she could publish an article on the same topic	9.6
A reviewer breeched confidentiality	6.8
A reviewer used your ideas, data, or methods without your permission	4.5

Survey of researchers, research staff, post-doctoral trainees and technicians at the NIEHS: Table 1 in Resnik et al (2008) Perceptions of Ethical Problems with Scientific Journal Peer Review: An Exploratory Study. *Sci Eng Ethics* **14**:305-310.

Wakeley

Peer Review: Reviewer Responsibilities

- What are your obligations as a reviewer?
  - Make sure that the science is sound
  - Confidentiality
  - Don’t use the information from unpublished manuscript
  - Be objective and disinterested
  - Read the entire manuscript, be informed, and read the supplemental information (!)
  - Be fair, weigh both positives and negatives
  - Be professional, not personal
  - Ask reasonable questions or requests within the scope of the article, and the scope of the audience, impact and breadth of the journal
  - Shouldn’t be about promoting your own research agenda
  - Try to help comment on the clarity of the writing
  - Inform the editor about conflicts of interest
  - Be timely in writing your review

(previous course answers)

Wakeley

Peer Review: Conflicts of Interest (COI)

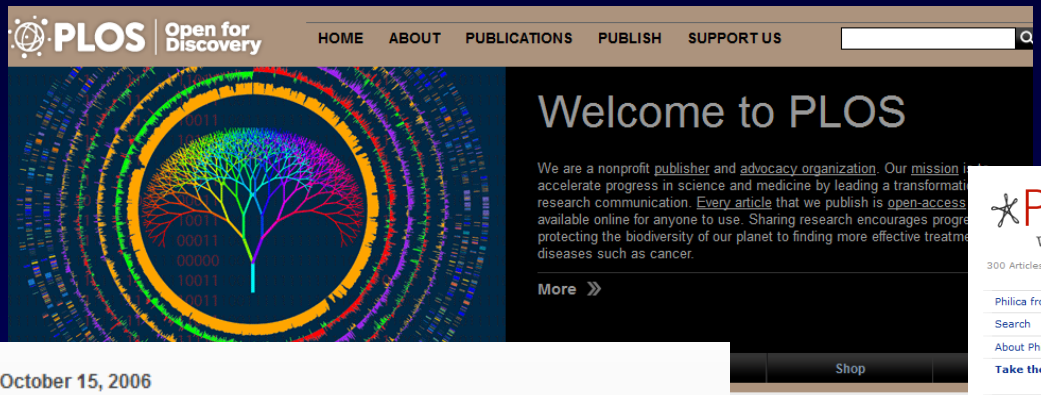
- Major professional role in the research
- Direct or indirect financial benefit from the research
- Employed by the researchers or by the same institution
- Professional or personal relationships
- Appearance of a conflict of interest

Peer Review: Confidentiality

- Maintain the confidentiality of all materials
- Treat like any other confidential info, (Best practices would be: no email; keep off of unsecure devices; use whole disk encryption on laptops; use only approved secure file sharing systems.)
- New resource for FAS: Secure Google apps via g.harvard.edu
  HMS: eCommons?

Wakeley

Peer Review: Time for a New Model?



Sunday, October 15, 2006

Open Access: death knell for peer review?

A frequent criticism of Open Access (OA) is that it will lead to the traditional peer review process being abandoned, with scientific papers simply thrown on to the Web without being subjected to any quality control or independent assessment. Is this likely? If so, would it matter?

The argument that OA threatens peer review is most often made by scientific publishers. They do so, argue OA advocates, not out of any genuine concern, but in the hope that by alarming people they can ward off the growing calls for research funders to introduce mandates requiring that all the research they fund is made freely available on the Internet.

Their real motive, critics add, is simply to protect the substantial profits that they make from scientific publishing.

Whatever the truth, there is no doubt that STM publishers are currently very keen to derail initiatives like the US Federal Research Public Access Act (FRPAA) — legislation that, if introduced, would require all US Government agencies with annual extramural research expenditures of over $100 million to make manuscripts of journal

PLoS One

- Limited Peer Review ("Has the science in this paper been done well enough to warrant it being entered into the scientific literature as a whole?") +
- Post-publication open comment

Wakeley

The NIH Peer Review Challenge

The National Institutes of Health Center for Scientific Review (CSR) is issuing two Challenges for ideas to detect potential bias in peer review and ideas to strengthen reviewer training to enhance impartiality and fairness in the review of grant applications.

A First Prize in the amount of $10,000 and a Second Prize in the amount of $5,000 is offered in each category below.

Challenge #1

New Methods to Detect Bias in Peer Review

Submit your idea on how to detect bias among reviewers due to gender, race/ethnicity, institutional affiliation, area of science, and/or amount of research experience of applicants. First and Second prizes will be offered in two categories, best empirically based idea and most creative idea. Additional details can be found at **FRN Doc.2014-10196**.

Challenge #2

Strategies to Strengthen Fairness and Impartiality in Peer Review

Submit your idea on how to strengthen reviewer training methods to enhance fairness and impartiality in peer review. First and Second prizes will be offered for the best overall ideas. Additional details can be found at **FRN Doc.2014-10203**.

Instructions:

http://public.csr.nih.gov/Pages/Challenge.aspx

1. Review the Complete Rules for Each Challenge.
2. Fill out the Appropriate Coversheet (**Challenge 1**) (**Challenge 2**).
3. Submit Your Ideas and Coversheet at **CSRDiversityPeerRev@mail.nih.gov**

Submissions: Must be received by 11:59 PM (EST) on June 30, 2014. Late submissions will not be considered.

Winners will be announced September 2, 2014.

Submit Your Idea at

CSRDiversityPeerRev@mail.nih.gov

The NIH Peer Review Challenge

And the winners are...

Challenge #1 New Methods to Detect Bias in Peer Review

First Prize: Best Empirically Based Idea

Measuring the Net Effect of *"Identity Cues"* on the Review of NIH Applications

David Budescu, Ph.D., Professor of Psychology, Fordham University

Mia Budescu, Ph.D., Assistant Professor, Lehman College

Second Prize: Best Empirically Based Idea

Do Investigator Race and/or Ethnicity of Topic Influence Research Evaluations?

Wendy Williams, Ph.D., Professor of Human Development

Stephen J. Ceci, Ph.D., Professor of Human Development Cornell University

First Prize: Most Creative Idea*

Identifying Commensuration Bias in Grant Review

Carole J. Lee, Ph.D., Assistant Professor of Philosophy

Elena A. Erosheva, Ph.D., Associate Professor of Statistics and Social Work

University of Washington

Challenge #2: Strategies to Strengthen Fairness and Impartiality in Peer Review

First Prize*

Using Reviewer Pledges and Images of a Diverse Science Workforce to Increase Impartiality and Fairness in the NIH Peer Review Process

Kaury Kucera, Ph.D., Lecturer, Post-Doctoral Associate, Molecular Biophysics and Biochemistry

Rona Ramos, Ph.D., Technical Support Specialists, Lecturer in Physics

Brett Berke, Ph.D., Associate Research Scientist, Lecturer in Molecular Cellular and Developmental Biology

Helen Caines, PH.D., Associate Professor, Physics

Shankar Ramamurti, Professor, Physics and Applied Physics

Yale University

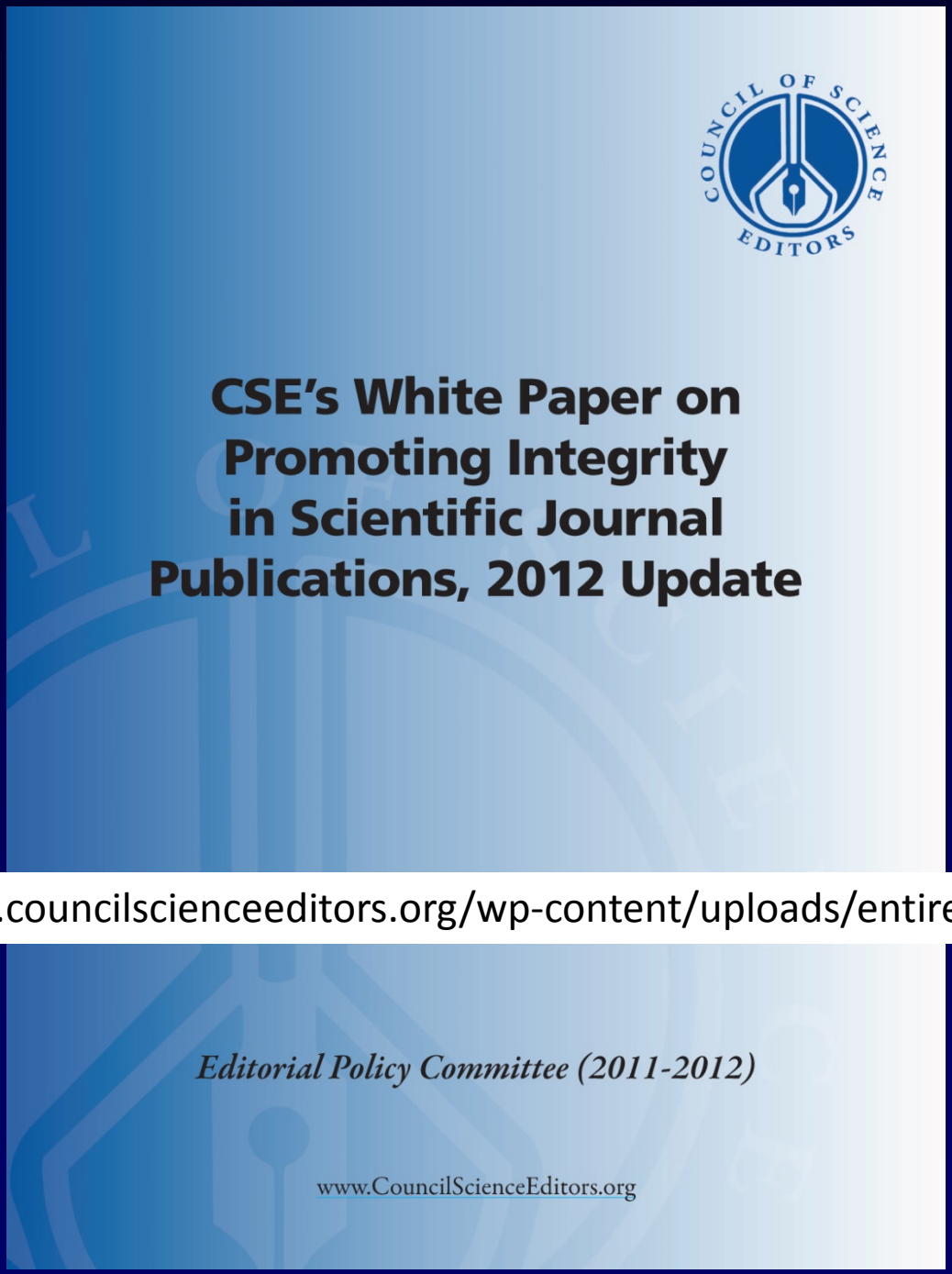
http://public.csr.nih.gov/Pages/challenge.aspx

Resources? *Please?*

http://grants.nih.gov/grants/peerreview22713webv2.pdf

NIH Peer Review:

Grants and Cooperative Agreements



http://www.councilscienceeditors.org/wp-content/uploads/entire_whitepaper.pdf

Information for Reviewers

Peer review is a critical factor in promoting the rigor and high quality of scientific research. The entire scientific community benefits when the peer-review process is timely, thorough, and balanced. The editors of Cell Press greatly appreciate the tremendous collective contribution that reviewers make to our journals and the articles they publish. We hope that the guidelines described below will help facilitate peer review as a conversation between authors and reviewers, and as an essential element of the publication process.

Reviewer invitations for Cell press journals are sent out by email from the Editorial Manager (EM) system. The invitation includes information about the title and abstract of the manuscript and an indication of the time frame in which we would like to receive the review. After agreeing to review the paper, the reviewer has access to the entire manuscript. Once referees submit their reviews, they will have access to the comments provided by the other reviewers as well. We encourage reviewers to contact the editorial office at any time if they require additional information or assistance.

The content of the review

The core of any review is an objective assessment of both the technical rigor and the novelty of the presented work. Key features of a review include

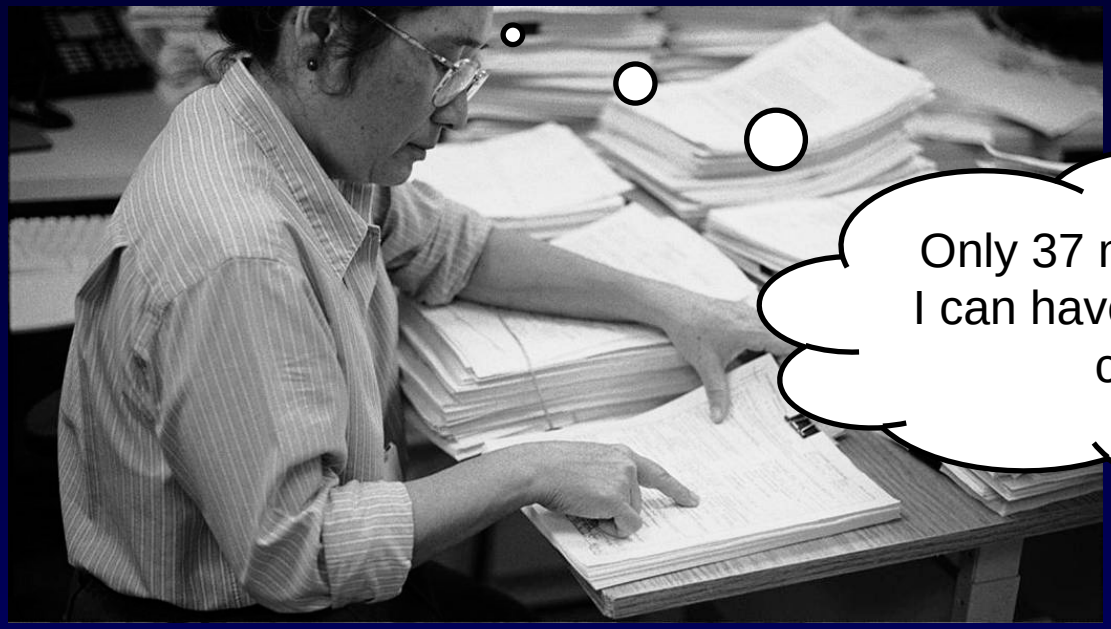
- an outline of the conceptual advance over previously published work,
- a specific recommendation,
- the reasons for that recommendation, and
- a summary of the specific strengths and weaknesses of the paper. In this regard, we encourage referees to comment on the quality and presentation of the figures as well as the validity of the statistical methods used to interpret them. (If necessary, the editors can obtain primary data from the authors for referees' use in these more detailed evaluations.)

Some other issues that are often useful to discuss include

- alternative hypotheses that are consistent with the available data,
- the paper's potential audience (i.e., the relevant fields within the readership of the journal), and
- balanced referencing of the pre-existing literature. In particular, when previously published work has undercut the novelty of the present findings, it is extremely helpful to include in the body of the review detailed citation of the relevant articles and data.

http://www.cell.com/reviewers

Wild and reckless speculation…



Thank you!

Pat Fitzgerald, Denise Moody, Jessica Rymut

John Wakeley and Logan McCarty

Journal editors, authors, staffers, funders…

… and Reviewer #3