

# Physical Review Letters and the Changing Role of Journals in Experimental Particle Physics

M. E. Peskin

April meeting of the APS  
50th anniversary of PRL

# Physical Review Letters

vision of Sam Goudsmit

born in 1958

US physics ascendant

age of the saxophone

coin of science - the refereed journal article

# letters to the Physical Review predate PRL

Phys. Rev. **101**, 1513 (1956).

<sup>5</sup>Thompson, Harvey, Choppin, and Seaborg, *J. Am. Chem. Soc.* **76**, 6229 (1954); Choppin, Harvey, and Thompson, *J. Inorg. and Nuclear Chem.* **2**, 66 (1956).

<sup>6</sup>Friedman, Gindler, Barnes, Sjöström, and Fields, *Phys. Rev.* **102**, 585 (1956).

## Experimental Test of Parity Conservation in Beta Decay\*

C. S. Wu, *Columbia University, New York, New York*

AND

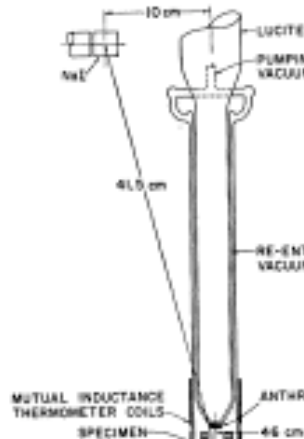
E. AMBLER, R. W. HAYWARD, D. D. HOFFES, AND R. P. HUDSON,  
*National Bureau of Standards, Washington, D. C.*

(Received January 15, 1957)

IN a recent paper<sup>1</sup> on the question of parity in weak interactions, Lee and Yang critically surveyed the experimental information concerning this question and reached the conclusion that there is no existing evidence either to support or to refute parity conservation in weak interactions. They proposed a number of experiments on beta decays and hyperon and meson decays which would provide the necessary evidence for parity conservation or nonconservation. In beta decay, one could measure the angular distribution of the electrons coming from beta decays of polarized nuclei. If an asymmetry in the distribution between  $\theta$  and  $180^\circ - \theta$  (where  $\theta$  is the angle between the orientation of the parent nuclei and the momentum of the electrons) is observed, it provides unequivocal proof that parity is not conserved in beta decay. This asymmetry effect has been observed in the case of oriented  $\text{Co}^{60}$ .

It has been known for some time that  $\text{Co}^{60}$  can be polarized by the Rose-Goeter magnesium (cobalt) nitrate, and that polarization is detected by measuring the succeeding gamma rays.<sup>2</sup> To apply this to the present problem, two major difficulties

are the equatorial plane and one near the polar position. The observed gamma-ray anisotropy was used as a measure of polarization, temperature. The bulk susceptibility is measured but this is of secondary importance to surface heating effects, and the isotropy alone provides a reliable measure of polarization. Specimens were made single crystals of cerium magnesium nitrate on the upper surface only an addition containing  $\text{Co}^{60}$ . One might point out that observed beta decay of  $\text{Co}^{60}$  involves a



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correction to be  $0.3 \pm 0.3$  or correction (compared to  $1.0 \pm 0.5$  Mev, giving a (at the minimum) of 1.0 Mev; we emphasized that this is more than the knowledge available since the odd-state

we point out that these two Mev, with those of the same potential in the case of the effects of the

Wu et al., *Phys. Rev.* **95**, 219 (1954), 1353 (1955); *Phys. Rev.* **103**, 1008 (1956); *Phys. Rev.* **97**, 1344

## Nuclear Emulsion Evidence for Parity Nonconservation in the Decay Chain

$$\pi^+ \rightarrow \mu^+ + e^+ + \nu^+$$

JEROME I. FRIEDMAN AND V. L. TELEGINI

*Enrico Fermi Institute for Nuclear Studies, University of Chicago, Chicago, Illinois*

(Received January 17, 1957)

LEE and Yang<sup>1</sup> recently re-examined the problem as to whether parity is conserved in nature and emphasized the fact that one actually lacks experimental evidence in support of this most natural hypothesis in the case of weak interactions (such as  $\beta$  decay). Violation of parity conservation can be inferred essentially only by measuring the probability distribution of some *pseudoscalar* quantity, e.g., of the projection of a polar vector along an axial vector, and

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<sup>4</sup>Their arguments are as follows: From the  $\text{He}^3$  recoil experiment and from Eq. (A-4) of reference 1 one concludes that  $(|C_1|^2 + |C_2|^2)/(|C_1|^2 + |C_2|^2) \leq 1$ . Hence, by comparing Eq. (16) of reference 3 [see also Eq. (A-6) of reference 1], one concludes that the present large asymmetry is possible only if both conservation of parity and invariance under charge conjugation are violated.

## Observations of the Failure of Conservation of Parity and Charge Conjugation in Meson Decays: the Magnetic Moment of the Free Muon\*

RICHARD L. GARWIN,<sup>†</sup> LEON M. LEDERMAN,  
AND MARCEL WEISSBACH

*Physics Department, Nevis Cyclotron Laboratories,  
Columbia University, Irvington-on-Hudson,  
New York, New York*

(Received January 15, 1957)

LEE and Yang<sup>1-3</sup> have proposed that the long held space-time principles of invariance under charge conjugation, time reversal, and space reflection (parity) are violated by the "weak" interactions responsible for decay of nuclei, mesons, and strange particles. Their hypothesis, born out of the  $\tau-\theta$  puzzle,<sup>4</sup> was accompanied by the suggestion that confirmation should be sought (among other places) in the study of the successive reactions

VI. The measured  $g$  value and the angular distribution in (2) lead to the very strong probability that the spin of the  $\mu^+$  is  $\frac{1}{2}$ .<sup>7</sup>

VII. The energy dependence of the observed asymmetry is not strong.

VIII. Negative muons stopped in carbon show an asymmetry (also leaked backwards) of  $a \sim -1/20$ , i.e., about 15% of that for  $\mu^+$ .

IX. The magnetic moment of the  $\mu^+$ , bound in carbon, is found to be negative and agrees within limited accuracy with that of the  $\mu^+$ .<sup>8</sup>

X. Large asymmetries are found for the  $e^+$  from polarized  $\mu^+$  beams stopped in polyethylene and calcium. Nuclear emulsion (as a target in Fig. 1) yields an asymmetry of about half that observed in carbon.

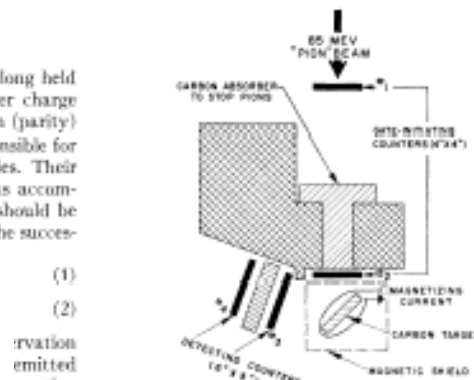


FIG. 1. Experimental arrangement. The magnetizing coil was close wound directly on the carbon to provide a uniform vertical field of 79 gauss per ampere.

The experimental arrangement is shown in Fig. 1. The meson beam is extracted from the Nevis cyclotron in the conventional manner, undergoing about  $120^\circ$  of

Goudsmit's innovation was to formalized this means of "rapid communication" and give it high prestige.

Over the past 50 years, Phys. Rev. Letters has been the forum of choice to announce the most important results in high-energy physics from the US and Japan. For most of this period, these were the most important results from the whole world.

OBSERVATION OF HIGH-ENERGY NEUTRINO REACTIONS AND THE EXISTENCE  
OF TWO KINDS OF NEUTRINOS\*

G. Danby, J.-M. Gaillard, K. Goulianos, L. M. Lederman, N. Mistry,  
M. Schwartz,<sup>†</sup> and J. Steinberger<sup>†</sup>

Columbia University, New York, New York and Brookhaven National Laboratory, Upton, New York  
(Received June 15, 1962)

In the course of an experiment at the Brook-  
haven AGS, we have observed the interaction  
of high-energy neutrinos with matter. These  
neutrinos were produced primarily as the result  
of the decay of the pion:

$$\pi^{\pm} \rightarrow \mu^{\pm} + (\nu/\bar{\nu}), \quad (1)$$

It is the purpose of this Letter to report some of  
the results of this experiment including (1) dem-  
onstration that the neutrinos we have used pro-

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EVIDENCE FOR THE  $2\pi$  DECAY OF THE  $K_S^0$  MESON\*<sup>†</sup>

J. H. Christenson, J. W. Cronin,<sup>‡</sup> V. L. Fitch,<sup>‡</sup> and R. Turlay<sup>§</sup>

Princeton University, Princeton, New Jersey

(Received 10 July 1964)

This Letter reports the results of experimental  
studies designed to search for the  $2\pi$  decay of the  
 $K_S^0$  meson. Several previous experiments have  
served<sup>1,2</sup> to set an upper limit of 1/300 for the  
fraction of  $K_S^0$ 's which decay into two charged pi-  
ons. The present experiment, using spark cham-  
ber techniques, proposed to extend this limit.

The analysis program computed the ve-  
locity and the momentum of each charged particle observ-  
ing the decay and the invariant mass,  $m^*$ , assum-  
ing each charged particle had the mass of the  
charged pion. In this detector the  $K_{\mu 3}$  decay  
leads to a distribution in  $m^*$  ranging from  
280 MeV to ~536 MeV; the  $K_{\mu 3}$ , from 280 to  
363 MeV. We emp

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OBSERVED BEHAVIOR OF HIGHLY INELASTIC ELECTRON-PROTON SCATTERING

M. Breidenbach, J. I. Friedman, and H. W. Kendall

Department of Physics and Laboratory for Nuclear Science,\*  
Massachusetts Institute of Technology, Cambridge, Massachusetts 02139

and

E. D. Bloom, D. H. Coward, H. DeStaebler, J. Drees, L. W. Mo, and R. E. Taylor

Stanford Linear Accelerator Center,<sup>†</sup> Stanford, California 94305

(Received 22 August 1969)

Results of electron-proton inelastic scattering at  $6^\circ$  and  $10^\circ$  are discussed, and values  
of the structure function  $W_2$  are estimated. If the interaction is dominated by transverse  
virtual photons,  $\nu W_2$  can be expressed as a function of  $\omega = 2M\nu/q^2$  within experimental

### Experimental Observation of a Heavy Particle $J^\dagger$

J. J. Aubert, U. Becker, P. J. Biggs, J. Burger, M. Chen, G. Everhart, P. Goldhagen, J. Leung, T. McCorriston, T. G. Rhoades, M. Rohde, Samuel C. C. Ting, and Sau Lan Wu  
*Laboratory for Nuclear Science and Department of Physics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139*

and

Y. Y. Lee  
*Brookhaven National Laboratory, Upton, New York 11973*  
(Received 12 November 1974)

We report the observation of a heavy particle  $J$ , with mass  $m \approx 3.1$  GeV and spin  $J = 0$ . The observation was made from the reaction  $p + p \rightarrow p + J + X$  measuring the  $e^+e^-$  mass spectrum with a precise pair spectrometer at the Brookhaven National Laboratory's 30-GeV alternating-gradient synchrotron.

This experiment is part of a large program to study the behavior of timelike photons in  $p + p \rightarrow e^+ + e^- + X$  reactions and to search for new particles which decay into  $e^+e^-$  and  $\mu^+\mu^-$  pairs.

We use a slow extracted beam from the Brookhaven National Laboratory's alternating-gradient synchrotron. The beam intensity varies from

10 to 100 particles per bunch, and is monitored daily with a thin Al  $3 \times 6$  mm<sup>2</sup>, and is recorded on television. Figure 1 shows a photograph of one arm of the spectrometer. The bending magnets are placed at the entrance and exit of the beam; bending magnets are used to decouple the

### Discovery of a Narrow Resonance in $e^+e^-$ Annihilation\*

J.-E. Augustin,† A. M. Boyarski, M. Breidenbach, F. Bulos, J. T. Dakin, G. J. Feldman, G. E. Fischer, D. Fryberger, G. Hanson, B. Jean-Marie,† R. R. Larsen, V. Lüth, H. L. Lynch, D. Lyon, C. C. Morehouse, J. M. Paterson, M. L. Perl, B. Richter, P. Raptis, R. F. Schwitters, W. M. Tanenbaum, and F. Vannucci‡

*Stanford Linear Accelerator Center, Stanford University, Stanford, California 94305*

and

G. S. Abrams, D. Briggs, W. Chinowsky, C. E. Friedberg, G. Goldhaber, R. J. Hollebeck, J. A. Kadyk, B. Lulu, F. Pierre,§ G. H. Trilling, J. S. Whitaker, J. Wiss, and J. E. Zipse

*Lawrence Berkeley Laboratory and Department of Physics, University of California, Berkeley, California 94720*  
(Received 13 November 1974)

We have observed a very sharp peak in the cross section for  $e^+e^- \rightarrow$  hadrons,  $e^+\mu^-$ , and possibly  $\mu^+\mu^-$  at a center-of-mass energy of  $3.103 \pm 0.003$  GeV. The upper limit to the full width at half-maximum is 1.3 MeV.

We have observed a very sharp peak in the cross section for  $e^+e^- \rightarrow$  hadrons,  $e^+e^-$ , and possibly  $\mu^+\mu^-$  in the Stanford Linear Accelerator

uncertainty in the absolute energy calibration of the storage ring. [We suggest naming this structure  $\psi(3103)$ .] The cross section for hadron pro-

### Preliminary Result of Frascati (ADONE) on the Nature of a New 3.1-GeV Particle Produced in $e^+e^-$ Annihilation\*

C. Bacchi, R. Balbini Cello, M. Berna-Rodini, G. Caton, R. Del Fabbro, M. Grilli, E. Inarocci, M. Locci, C. Menicucci, G. P. Murtas, G. Penso, G. S. M. Spinetti, M. Spano, B. Stella, and V. Valentis  
*The Gamma-Gamma Group, Laboratori Nazionali di Frascati, Frascati, Italy*

and

B. Bartoli, D. Bisello, B. Esposito, F. Felicetti, P. Monacelli, M. Nigro, L. Paulucci, I. Peruzzi, G. Piano Morteni, M. Piccolo, F. Ronga, F. Sebastiani, L. Trasatti, and F. Vanoli  
*The Magnet Experimental Group for ADONE, Laboratori Nazionali di Frascati, Frascati, Italy*

and

G. Barbarino, G. Barbiellini, C. Bemporad, R. Biancastelli, F. Cevenini, M. Celvetti, F. Costantini, P. Larcetta, P. Parascandalo, E. Sassi, C. Spencer, L. Tortora,

consecutive papers in  
a single issue of PRL

### Observation of Top Quark Production in $p\bar{p}$ Collisions with the Collider Detector at Fermilab

F. Abe,<sup>14</sup> H. Akimoto,<sup>32</sup> A. Akopian,<sup>27</sup> M. G. Albrow,<sup>7</sup> S. R. Amendolia,<sup>24</sup> D. Amidei,<sup>17</sup> J. Antos,<sup>28</sup> C. Anway-Wiese,<sup>4</sup> S. Aota,<sup>22</sup> G. Apollinari,<sup>27</sup> T. Asakawa,<sup>32</sup> W. Ashmanskas,<sup>15</sup> M. Atac,<sup>7</sup> P. Auchincloss,<sup>28</sup> F. Azfar,<sup>22</sup> P. Azzi-Bacchetta,<sup>21</sup> N. Bacchetta,<sup>28</sup> W. Badgett,<sup>17</sup> S. Bagdasarov,<sup>27</sup> M. W. Bailey,<sup>19</sup> J. Bao,<sup>35</sup> P. de Barbaro,<sup>26</sup> A. Barbaro-Galtieri,<sup>15</sup> V. E. Barnes,<sup>25</sup> B. A. Barnett,<sup>13</sup> P. Bartalini,<sup>24</sup> G. Bauer,<sup>16</sup> T. Baumann,<sup>9</sup> F. Bedeschi,<sup>24</sup> S. Behrems,<sup>3</sup> S. Belforte,<sup>24</sup> G. Bellettini,<sup>24</sup> J. Bellinger,<sup>24</sup> D. Benjamin,<sup>31</sup> J. Benlloch,<sup>36</sup> J. Bensinger,<sup>3</sup> D. Benton,<sup>22</sup> A. Beretvas,<sup>7</sup> J. P. Berge,<sup>7</sup> S. Bertolucci,<sup>8</sup> A. Bhatti,<sup>27</sup> K. Biery,<sup>12</sup> M. Binkley,<sup>7</sup> D. Bisello,<sup>21</sup> R. F. Blair,<sup>1</sup> C. Blocker,<sup>2</sup> A. Bodek,<sup>29</sup> W. Bokhari,<sup>19</sup> V. Bolognesi,<sup>24</sup> D. Bortoletto,<sup>25</sup> J. Boudreau,<sup>23</sup> G. Brandenburg,<sup>9</sup> L. Breccia,<sup>2</sup> C. Bromberg,<sup>18</sup> E. Buckley-Geer,<sup>7</sup> H. S. Budd,<sup>26</sup> K. Burkett,<sup>17</sup> G. Busetto,<sup>21</sup> A. Byon-Wagner,<sup>1</sup> K. L. Byrum,<sup>1</sup> J. Cammerata,<sup>13</sup> C. Campagnari,<sup>3</sup> M. Campbell,<sup>17</sup> A. Caner,<sup>7</sup> W. Carithers,<sup>15</sup> D. Carlsmith,<sup>24</sup> A. Castro,<sup>21</sup> G. Cauz,<sup>24</sup> Y. Cen,<sup>26</sup> F. Cervelli,<sup>24</sup> H. Y. Chao,<sup>24</sup> J. Chapman,<sup>17</sup> M.-T. Cheng,<sup>28</sup> G. Chiarelli,<sup>24</sup> T. Chikamatsu,<sup>22</sup> C. N. Chiu,<sup>29</sup> L. Christofek,<sup>11</sup> S. Cihangir,<sup>7</sup> A. G. Clark,<sup>24</sup> M. Cobal,<sup>24</sup> M. Contreras,<sup>5</sup> J. Conway,<sup>28</sup> J. Cooper,<sup>7</sup> M. Cordelli,<sup>9</sup> C. Couyoumzells,<sup>24</sup> D. Crane,<sup>1</sup> D. Cronin-Hennessy,<sup>6</sup> R. Culbertson,<sup>5</sup> J. D. Cunningham,<sup>5</sup> T. Daniels,<sup>16</sup> F. DeJongh,<sup>7</sup> S. Delchamps,<sup>7</sup> S. Dell'Agnello,<sup>24</sup> M. Dell'Orso,<sup>24</sup> L. Demortier,<sup>27</sup> B. Denby,<sup>28</sup> M. Deninno,<sup>2</sup> P. F. Derwent,<sup>17</sup> T. Devlin,<sup>24</sup> M. Di Lorenzo,<sup>26</sup> J. D. Dowd,<sup>17</sup> S. R. Durrant,<sup>24</sup> D. R. Dyer,<sup>15</sup> A. F. Evans,<sup>17</sup> K. Fisk,<sup>17</sup> K. Einsweiler,<sup>12</sup> J. E. Elin,<sup>1</sup> G. W. Foster,<sup>7</sup> M. Frank,<sup>3</sup> S. Funaki,<sup>32</sup> G. Gagliardi,<sup>23</sup> D. W. Gerdes,<sup>17</sup> P. Giannetti,<sup>1</sup> A. Gordon,<sup>9</sup> A. T. Gost,<sup>1</sup> R. S. Guo,<sup>29</sup> C. Haber,<sup>15</sup> S. F. S. A. Hauger,<sup>8</sup> J. Hauser,<sup>1</sup> L. Holloway,<sup>11</sup> A. Hölsche,<sup>1</sup> J. Hlyen,<sup>7</sup> H. Ikeda,<sup>32</sup> E. Kajfasz,<sup>7,4</sup> T. Kamon,<sup>30,1</sup> R. Kephart,<sup>7</sup> P. Kesten,<sup>12</sup> H. S. Kim,<sup>12</sup> S. B. Kim,<sup>17,5</sup> K. Kordas,<sup>12</sup> W. Kosk,<sup>1</sup> S. E. Kuhlmann,<sup>1</sup> E. Kuns,<sup>28</sup> J. D. Lewis,<sup>7</sup> P. Limon,<sup>7</sup> D. Lucchesi,<sup>24</sup> P. Lukens,<sup>1</sup> J. Mansour,<sup>18</sup> M. Mari,

### Observation of the Top Quark

S. Abachi,<sup>12</sup> B. Abbott,<sup>33</sup> M. Abolins,<sup>23</sup> B. S. Acharya,<sup>40</sup> I. Adam,<sup>16</sup> D. L. Adams,<sup>34</sup> M. Adams,<sup>15</sup> S. Ahn,<sup>12</sup> H. Aihara,<sup>20</sup> J. Alitti,<sup>26</sup> G. Álvarez,<sup>16</sup> G. A. Alves,<sup>8</sup> E. Amidi,<sup>27</sup> N. Amos,<sup>22</sup> E. W. Anderson,<sup>17</sup> S. H. Aronson,<sup>3</sup> R. Astur,<sup>28</sup> R. E. Avery,<sup>20</sup> A. Baden,<sup>21</sup> V. Balamurali,<sup>39</sup> J. Balderston,<sup>14</sup> B. Baldin,<sup>12</sup> J. Bantly,<sup>4</sup> J. F. Bartlett,<sup>12</sup> K. Bazizi,<sup>7</sup> J. Bendich,<sup>20</sup> S. B. Beri,<sup>31</sup> I. Bertram,<sup>34</sup> V. A. Bezzubov,<sup>32</sup> P. C. Bhat,<sup>12</sup> V. Bhatnagar,<sup>31</sup> M. Bhattacharjee,<sup>11</sup> A. Bischoff,<sup>7</sup> N. Biswas,<sup>30</sup> G. Blazey,<sup>12</sup> S. Blessing,<sup>15</sup> A. Boehnlein,<sup>12</sup> N. I. Bojko,<sup>32</sup> F. Borchering,<sup>12</sup> J. Borders,<sup>35</sup> C. Boswell,<sup>3</sup> A. Brandt,<sup>12</sup> R. Bruck,<sup>22</sup> A. Bruns,<sup>12</sup> D. Buchholz,<sup>27</sup> V. S. Burakov,<sup>22</sup> J. M. Butler,<sup>12</sup> D. Casey,<sup>28</sup> H. Castilla-Valdez,<sup>7</sup> D. Chakraborty,<sup>26</sup> S.-M. Chang,<sup>27</sup> S. V. Chekulaev,<sup>32</sup> L.-P. Chen,<sup>28</sup> W. Chen,<sup>28</sup> L. Chevalier,<sup>26</sup> S. Chopra,<sup>24</sup> B. C. Choudhary,<sup>7</sup> J. H. Christenson,<sup>12</sup> M. Chung,<sup>15</sup> D. Claes,<sup>15</sup> A. R. Clark,<sup>20</sup> W. G. Cobau,<sup>21</sup> J. Cochran,<sup>7</sup> W. E. Cooper,<sup>12</sup> C. Cretsinger,<sup>25</sup> D. Cullen-Vidal,<sup>4</sup> M. Cummings,<sup>14</sup> D. Cuts,<sup>4</sup> O. I. Dahl,<sup>20</sup> K. De,<sup>41</sup> M. Demarteau,<sup>12</sup> R. Demina,<sup>27</sup> K. Denisenko,<sup>12</sup> N. Denisenko,<sup>12</sup> D. Denisov,<sup>12</sup> S. P. Denisov,<sup>32</sup> W. Dharmaratna,<sup>13</sup> H. T. Diehl,<sup>12</sup> M. Diesburg,<sup>12</sup> G. Di Loreto,<sup>23</sup> R. Dison,<sup>12</sup> P. Draper,<sup>41</sup> J. Drinkard,<sup>6</sup> Y. Ducros,<sup>26</sup> S. R. Dugad,<sup>48</sup> S. Durston-Johnson,<sup>35</sup> D. Edmunds,<sup>25</sup> A. O. Efilimov,<sup>32</sup> J. Ellison,<sup>7</sup> V. D. Elvira,<sup>12,8</sup> R. Engelmann,<sup>28</sup> S. Eno,<sup>21</sup> G. Eppley,<sup>24</sup> P. Ermolov,<sup>24</sup> O. V. Eroshin,<sup>32</sup> V. N. Evdokimov,<sup>32</sup> S. Fahey,<sup>23</sup> T. Fahland,<sup>4</sup> M. Fatyga,<sup>3</sup> M. K. Fatyga,<sup>25</sup> J. Featherly,<sup>3</sup> S. Feber,<sup>28</sup> D. Fein,<sup>3</sup> T. Ferbel,<sup>25</sup> G. Finocchiaro,<sup>38</sup> H. E. Fisk,<sup>12</sup> Yu. Fisyak,<sup>24</sup> E. Flattum,<sup>23</sup> G. E. Forden,<sup>7</sup> M. Fortner,<sup>24</sup> K. C. Frame,<sup>23</sup> P. Franzini,<sup>10</sup> S. Fredriksen,<sup>28</sup> S. Fuess,<sup>12</sup> A. N. Galjaev,<sup>22</sup> E. Gallas,<sup>41</sup> C. S. Gao,<sup>12,1</sup> S. Gao,<sup>12,1</sup> T. L. Geld,<sup>25</sup> R. J. Genik II,<sup>23</sup> K. Genser,<sup>12</sup> C. E. Gerber,<sup>12,3</sup> B. Gibbard,<sup>3</sup> M. Glaubman,<sup>27</sup> V. Glebov,<sup>25</sup> S. Glenn,<sup>3</sup> J. F. Glicenstein,<sup>26</sup> B. Gobbi,<sup>29</sup> M. Goforth,<sup>13</sup> A. Goldschmidt,<sup>20</sup> B. Gomez,<sup>1</sup> P. I. Goncharov,<sup>32</sup> H. Gordon,<sup>3</sup> L. T. Goss,<sup>12</sup> N. Graf,<sup>3</sup> P. D. Grannis,<sup>26</sup>

## Evidence for Oscillation of Atmospheric Neutrinos

Y. Fukuda,<sup>1</sup> T. Hayakawa,<sup>1</sup> E. Ichihara,<sup>1</sup> K. Inoue,<sup>1</sup> K. Ishihara,<sup>1</sup> H. Ishino,<sup>1</sup> Y. Itow,<sup>1</sup> T. Kajita,<sup>1</sup> J. Kameda,<sup>1</sup> S. Kasuga,<sup>1</sup> K. Kobayashi,<sup>1</sup> Y. Kobayashi,<sup>1</sup> Y. Koshio,<sup>1</sup> M. Miura,<sup>1</sup> M. Nakahata,<sup>1</sup> S. Nakayama,<sup>1</sup> A. Okada,<sup>1</sup> K. Okumura,<sup>1</sup> N. Sakurai,<sup>1</sup> M. Shiozawa,<sup>1</sup> Y. Suzuki,<sup>1</sup> Y. Takeuchi,<sup>1</sup> Y. Totsuka,<sup>1</sup> S. Yamada,<sup>1</sup> M. Earl,<sup>2</sup> A. Habig,<sup>2</sup> E. Kearns,<sup>2</sup> M. D. Messier,<sup>2</sup> K. Scholberg,<sup>2</sup> J. L. Stone,<sup>2</sup> L. R. Sulak,<sup>2</sup> C. W. Walter,<sup>2</sup> M. Goldhaber,<sup>3</sup> T. Barszczak,<sup>4</sup> D. Casper,<sup>4</sup> W. Gajewski,<sup>4</sup> P. G. Halverson,<sup>4\*</sup> J. Hsu,<sup>4</sup> W. R. Kropp,<sup>4</sup> L. R. Price,<sup>4</sup> F. Reines,<sup>4</sup> M. Smy,<sup>4</sup> H. W. Sobel,<sup>4</sup> M. R. Vagins,<sup>4</sup> K. S. Ganezer,<sup>5</sup> W. E. Keig,<sup>5</sup> R. W. Ellsworth,<sup>6</sup> S. Tasaka,<sup>7</sup> J. W. Flanagan,<sup>8,†</sup> A. Kibayashi,<sup>8</sup> J. G. Learned,<sup>8</sup> S. Matsuno,<sup>8</sup> V. J. Stenger,<sup>8</sup> D. Takemori,<sup>8</sup> T. Ishii,<sup>9</sup> J. Kanzaki,<sup>9</sup> T. Kobayashi,<sup>9</sup> S. Mine,<sup>9</sup> K. Nakamura,<sup>9</sup> K. Nishikawa,<sup>9</sup> Y. Oyama,<sup>9</sup> A. Sakai,<sup>9</sup> M. Sakuda,<sup>9</sup> O. Sasaki,<sup>9</sup> S. Echigo,<sup>10</sup> M. Kohama,<sup>10</sup> A. T. Suzuki,<sup>10</sup> T. J. Haines,<sup>11,‡</sup> E. Blaufuss,<sup>12</sup> B. K. Kim,<sup>12</sup> R. Sanford,<sup>12</sup> R. Svoboda,<sup>12</sup> M. L. Chen,<sup>13</sup> Z. Conner,<sup>13,‡</sup> J. A. Goodman,<sup>13</sup> G. W. Sullivan,<sup>13</sup> J. Hill,<sup>14</sup> C. K. Jung,<sup>14</sup> K. Martens,<sup>14</sup> C. Mauger,<sup>14</sup> C. McGrew,<sup>14</sup> E. Sharkey,<sup>14</sup> B. Viren,<sup>14</sup> C. Yanagisawa,<sup>14</sup> W. Doki,<sup>15</sup> K. Miyano,<sup>15</sup> H. Okazawa,<sup>15</sup> C. Saji,<sup>15</sup> M. Takahata,<sup>15</sup> Y. Nagashima,<sup>16</sup> M. Takita,<sup>16</sup> T. Yamaguchi,<sup>16</sup> M. Yoshida,<sup>16</sup> S. B. Kim,<sup>17</sup> M. Etoh,<sup>18</sup> K. Fujita,<sup>18</sup> A. Hasegawa,<sup>18</sup> T. Hasegawa,<sup>18</sup> S. Hatakeyama,<sup>18</sup> T. Iwamoto,<sup>18</sup> M. Koga,<sup>18</sup> T. Maruyama,<sup>18</sup> H. Ogawa,<sup>18</sup> J. Shirai,<sup>18</sup> A. Suzuki,<sup>18</sup> F. Tsushima,<sup>18</sup> M. Koshiba,<sup>19</sup> M. Nemoto,<sup>20</sup> K. Nishijima,<sup>20</sup> T. Futagami,<sup>21</sup> Y. Hayato,<sup>21,§</sup> Y. Kanaya,<sup>21</sup> K. Kaneyuki,<sup>21</sup> Y. Watanabe,<sup>21</sup> D. Kielczewska,<sup>22,¶</sup> R. A. Doyle,<sup>23</sup> J. S. George,<sup>23</sup> A. L. Stachyra,<sup>23</sup> L. L. Wai,<sup>23,||</sup> R. J. Wilkes,<sup>23</sup> and K. K. Young<sup>23</sup>  
(Super-Kamiokande Collaboration)

<sup>1</sup>Institute for Cosmic Ray Research, University of Tokyo, Tanashi, Tokyo, 188-8502, Japan

<sup>2</sup>Department of Physics, Boston University, Boston, Massachusetts 02215

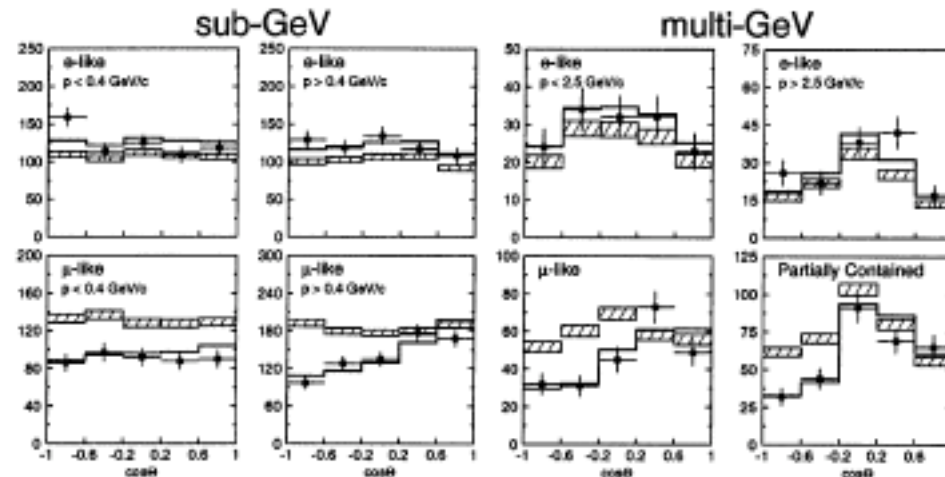
<sup>3</sup>Physics Department, Brookhaven National Laboratory, Upton, New York 11973

<sup>4</sup>Department of Physics and Astronomy, University of California at Irvine, Irvine, California 92697-4575

<sup>5</sup>Department of Physics, California State University, Dominguez Hills, Carson, California 90747

<sup>6</sup>Department of Physics, George Mason University, Fairfax, Virginia 22030

<sup>7</sup>Department of Physics, Gifu University, Gifu, Gifu 501-1193, Japan





Observation of  $CP$  Violation in the  $B^0$  Meson System

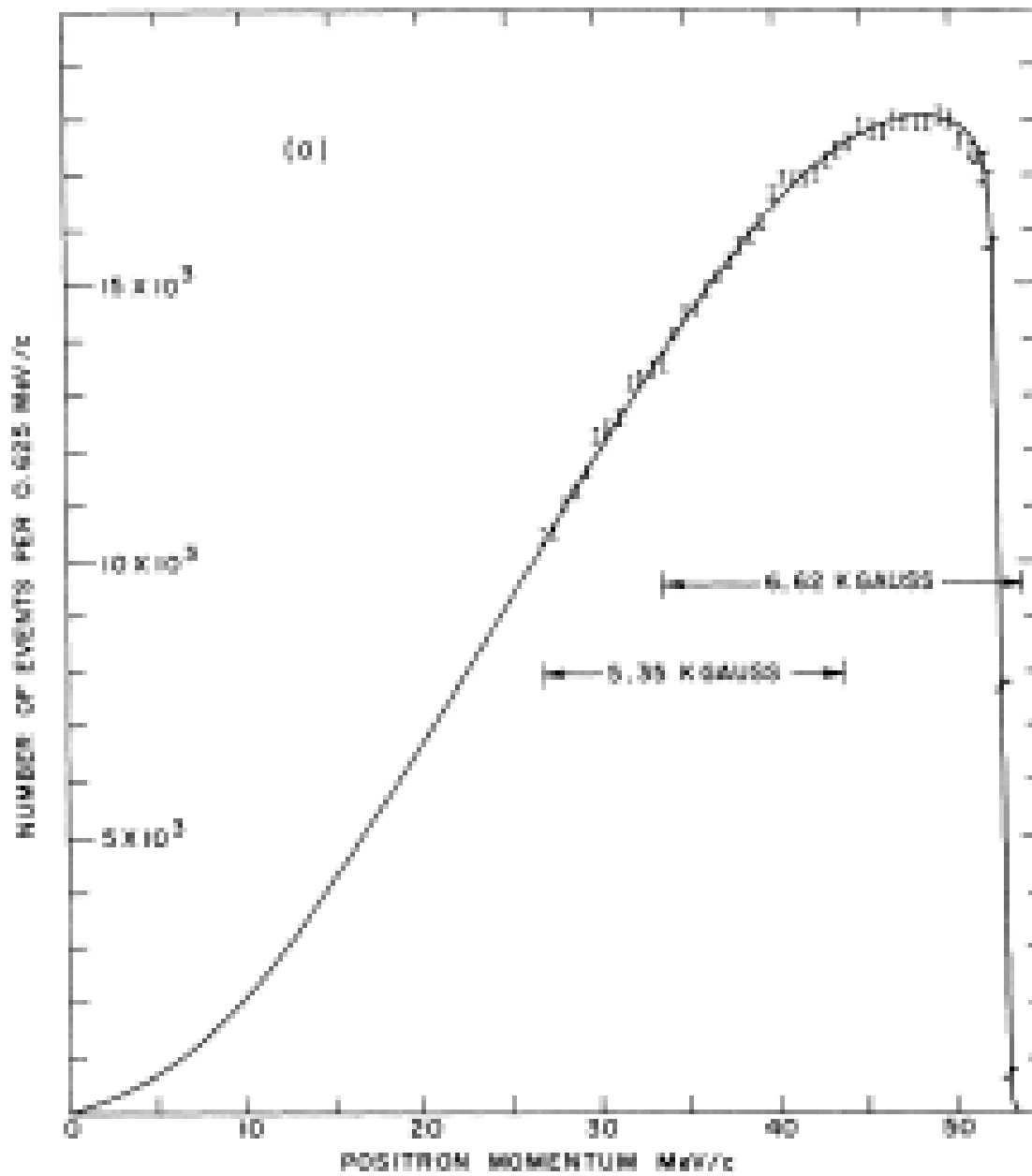
B. Aubert,<sup>1</sup> D. Boutigny,<sup>1</sup> J.-M. Gaillard,<sup>1</sup> A. Hicheur,<sup>1</sup> Y. Karyotakis,<sup>1</sup> J.P. Lees,<sup>1</sup> P. Robbe,<sup>1</sup> V. Tisserand,<sup>1</sup>  
 A. Palano,<sup>2</sup> G.P. Chen,<sup>3</sup> J.C. Chen,<sup>3</sup> N.D. Qi,<sup>3</sup> G. Rong,<sup>3</sup> P. Wang,<sup>3</sup> Y.S. Zhu,<sup>3</sup> G. Eigen,<sup>4</sup> P.L. Reinertsen,<sup>4</sup> B. Stugu,<sup>4</sup>  
 B. Abbott,<sup>5</sup> G.S. Abrams,<sup>5</sup> A.W. Borgland,<sup>5</sup> A.B. Brecon,<sup>5</sup> D.N. Brown,<sup>5</sup> J. Button-Shafer,<sup>5</sup> R.N. Cahn,<sup>5</sup> A.R. Clark,<sup>5</sup>  
 M.S. Gill,<sup>5</sup> A.V. Gritsan,<sup>5</sup> Y. Groyzman,<sup>5</sup> R.G. Jacobsen,<sup>5</sup> R.W. Kadel,<sup>5</sup> J. Kadyk,<sup>5</sup> L.T. Kerth,<sup>5</sup> S. Kluth,<sup>5</sup>  
 Yu.G. Kolomensky,<sup>5</sup> J.F. Kral,<sup>5</sup> C. LeClerc,<sup>5</sup> M.E. Levi,<sup>5</sup> T. Liu,<sup>5</sup> G. Lynch,<sup>5</sup> A.B. Meyer,<sup>5</sup> M. Momayezi,<sup>5</sup>  
 P.J. Oddone,<sup>5</sup> A. Perazzo,<sup>5</sup> M. Pripstein,<sup>5</sup> N.A. Roe,<sup>5</sup> A. Romosan,<sup>5</sup> M.T. Ronan,<sup>5</sup> V.G. Shelkov,<sup>5</sup> A.V. Telnov,<sup>5</sup>  
 W.A. Wenzel,<sup>5</sup> M.S. Zisman,<sup>5</sup> P.G. Bright-Thomas,<sup>6</sup> T.J. Harrison,<sup>6</sup> C.M. Hawkes,<sup>6</sup> D.J. Knowles,<sup>6</sup> S.W. O'Neale,<sup>6</sup>  
 R.C. Penny,<sup>6</sup> A.T. Watson,<sup>6</sup> N.K. Watson,<sup>6</sup> T. Deppermann,<sup>7</sup> K. Goetzen,<sup>7</sup> H. Koch,<sup>7</sup> J. Krug,<sup>7</sup> M. Kunze,<sup>7</sup>  
 B. Lewandowski,<sup>7</sup> K. Peters,<sup>7</sup> H. Schmæcker,<sup>7</sup> M. Steinke,<sup>7</sup> J.C. Andress,<sup>8</sup> N.R. Barlow,<sup>8</sup> W. Bhimji,<sup>8</sup> N. Chevalier,<sup>8</sup>  
 P.J. Clark,<sup>8</sup> W.N. Cottingham,<sup>8</sup> N. De Groot,<sup>8</sup> N. Dyer,<sup>8</sup> B. Foster,<sup>8</sup> J.D. McFall,<sup>8</sup> D. Wallom,<sup>8</sup> F.F. Wilson,<sup>8</sup>  
 K. Abe,<sup>9</sup> C. Hearty,<sup>9</sup> T.S. Mattison,<sup>9</sup> J.A. McKenna,<sup>9</sup> D. Thiessen,<sup>9</sup> S. Jolly,<sup>10</sup> A.K. McKemey,<sup>10</sup> J. Tinslay,<sup>10</sup>  
 V.E. Blinov,<sup>11</sup> A.D. Bukin,<sup>11</sup> D.A. Bukin,<sup>11</sup> A.R. Buzylkaev,<sup>11</sup> V.B. Golubev,<sup>11</sup> V.N. Ivanchenko,<sup>11</sup> A.A. Korol,<sup>11</sup>  
 E.A. Kravchenko,<sup>11</sup> A.P. Onuchin,<sup>11</sup> A.A. Salnikov,<sup>11</sup> S.I. Serednyakov,<sup>11</sup> Yu.I. Skovpen,<sup>11</sup> V.I. Telnov,<sup>11</sup>  
 A.N. Yushkov,<sup>11</sup> D. Best,<sup>12</sup> A.J. Lankford,<sup>12</sup> M. Mandelkern,<sup>12</sup> S. McMahon,<sup>12</sup> D.P. Stoker,<sup>12</sup> A. Ahsan,<sup>13</sup>  
 K. Arisaka,<sup>13</sup> C. Buchanan,<sup>13</sup> S. Chun,<sup>13</sup> J.G. Branson,<sup>14</sup> D.B. MacFarlane,<sup>14</sup> S. Prall,<sup>14</sup> Sh. Rahaletz,<sup>14</sup> G. Ravon,<sup>14</sup>  
 V. Sharma,<sup>14</sup> C. Campagnari,<sup>15</sup> B. Dahmes,<sup>15</sup> P.A. Hart,<sup>15</sup> N. Kuz  
 J.D. Richman,<sup>15</sup> W. Verkerke,<sup>15</sup> M. Witherell,<sup>15</sup> S. Yellin,<sup>15</sup> J.I  
 A. Frey,<sup>16</sup> A.A. Grillo,<sup>16</sup> M. Grothe,<sup>16</sup> C.A. Heusch,<sup>16</sup> R.P. Johnson,<sup>16</sup>  
 H. Sadrozinski,<sup>16</sup> T. Schalk,<sup>16</sup> R.E. Schmitz,<sup>16</sup> B.A. Schumm,<sup>16</sup>  
 D.C. Williams,<sup>16</sup> M.G. Wilson,<sup>16</sup> E. Chen,<sup>17</sup> G.P. Dubois-Felsmann,  
 J. Oyang,<sup>17</sup> F.C. Porter,<sup>17</sup> A. Ryd,<sup>17</sup> A. Samuel,<sup>17</sup> M. Weaver,<sup>17</sup> S. J  
 S. Jayatilake,<sup>18</sup> G. Mancinelli,<sup>18</sup> B.T. Meadows,<sup>18</sup> M.D. Sokoloff  
 S. Fahev,<sup>19</sup> W.T. Ford,<sup>19</sup> D.R. Johnson,<sup>19</sup> U. Nauenberg,<sup>19</sup> A. Oliva

Observation of Large  $CP$  Violation in the Neutral  $B$  Meson System

K. Abe,<sup>9</sup> K. Abe,<sup>37</sup> R. Abe,<sup>27</sup> I. Adachi,<sup>9</sup> Byoung Sup Ahn,<sup>16</sup> H. Aihara,<sup>39</sup> M. Akatsu,<sup>20</sup> G. Alimonti,<sup>8</sup> K. Asai,<sup>21</sup>  
 M. Asai,<sup>10</sup> Y. Asano,<sup>44</sup> T. Aso,<sup>43</sup> V. Aulchenko,<sup>2</sup> T. Aushev,<sup>14</sup> A.M. Bakich,<sup>35</sup> E. Banas,<sup>25</sup> S. Behari,<sup>9</sup> P.K. Behera,<sup>45</sup>  
 D. Beilene,<sup>2</sup> A. Bondar,<sup>2</sup> A. Bozek,<sup>25</sup> T.E. Browder,<sup>8</sup> B.C.K. Casey,<sup>8</sup> P. Chang,<sup>24</sup> Y. Chao,<sup>24</sup> K.-F. Chen,<sup>24</sup>  
 B.G. Cheon,<sup>34</sup> R. Chistov,<sup>14</sup> S.-K. Choi,<sup>7</sup> Y. Choi,<sup>34</sup> L. Y. Dong,<sup>12</sup> J. Dragic,<sup>19</sup> A. Drutskoy,<sup>14</sup> S. Eidelman,<sup>2</sup> V. Eiges,<sup>14</sup>  
 Y. Enari,<sup>20</sup> R. Enomoto,<sup>9</sup> C.W. Everton,<sup>19</sup> F. Fang,<sup>8</sup> H. Fujii,<sup>9</sup> C. Fukunaga,<sup>41</sup> M. Fukushima,<sup>11</sup> N. Gabyshev,<sup>9</sup>  
 A. Garmash,<sup>2,9</sup> T.J. Gershon,<sup>9</sup> A. Gordon,<sup>19</sup> K. Gotow,<sup>46</sup> H. Guler,<sup>8</sup> R. Guo,<sup>22</sup> J. Haba,<sup>9</sup> H. Hamasaki,<sup>9</sup> K. Hanagaki,<sup>21</sup>  
 F. Handa,<sup>38</sup> K. Hara,<sup>29</sup> T. Hara,<sup>29</sup> N.C. Hastings,<sup>19</sup> H. Hayashii,<sup>21</sup> M. Hazumi,<sup>29</sup> E.M. Heenan,<sup>19</sup> Y. Higashino,<sup>20</sup>  
 I. Higuchi,<sup>38</sup> T. Higuchi,<sup>39</sup> T. Hirai,<sup>40</sup> H. Hirano,<sup>42</sup> T. Hojo,<sup>29</sup> T. Hokuue,<sup>20</sup> Y. Hoshi,<sup>37</sup> K. Hoshino,<sup>42</sup> S.R. Hou,<sup>24</sup>  
 W.-S. Hou,<sup>24</sup> S.-C. Hsu,<sup>24</sup> H.-C. Huang,<sup>24</sup> Y. Igarashi,<sup>9</sup> T. Iijima,<sup>9</sup> H. Ikeda,<sup>9</sup> K. Ikeda,<sup>21</sup> K. Inami,<sup>20</sup> A. Ishikawa,<sup>20</sup>  
 H. Ishino,<sup>40</sup> R. Itoh,<sup>9</sup> G. Iwai,<sup>27</sup> H. Iwasaki,<sup>9</sup> Y. Iwasaki,<sup>9</sup> D.J. Jackson,<sup>29</sup> P. Jalocha,<sup>25</sup> H.K. Jang,<sup>33</sup> M. Jones,<sup>8</sup>  
 R. Kagan,<sup>14</sup> H. Kakuno,<sup>40</sup> J. Kaneko,<sup>40</sup> J.H. Kang,<sup>48</sup> J.S. Kang,<sup>16</sup> P. Kapusta,<sup>25</sup> N. Katayama,<sup>9</sup> H. Kawai,<sup>3</sup> H. Kawai,<sup>39</sup>  
 Y. Kawakami,<sup>20</sup> N. Kawamura,<sup>1</sup> T. Kawasaki,<sup>27</sup> H. Kichimi,<sup>9</sup> D.W. Kim,<sup>34</sup> Heejeong Kim,<sup>48</sup> H.J. Kim,<sup>48</sup>  
 Hyunwoo Kim,<sup>16</sup> S.K. Kim,<sup>33</sup> T.H. Kim,<sup>48</sup> K. Kinoshita,<sup>5</sup> S. Kobayashi,<sup>32</sup> S. Koishi,<sup>40</sup> H. Konishi,<sup>42</sup>  
 K. Korotushenko,<sup>31</sup> P. Krokovny,<sup>2</sup> R. Kulasiri,<sup>5</sup> S. Kumar,<sup>30</sup> T. Kuniya,<sup>32</sup> E. Kurihara,<sup>3</sup> A. Kuzmin,<sup>2</sup> Y.-J. Kwon,<sup>48</sup>  
 J.S. Lange,<sup>6</sup> G. Leder,<sup>13</sup> M.H. Lee,<sup>9</sup> S.H. Lee,<sup>33</sup> C. Leonidopoulos,<sup>31</sup> Y.-S. Lin,<sup>24</sup> D. Liventsev,<sup>14</sup> R.-S. Lu,<sup>24</sup>  
 J. MacNaughton,<sup>13</sup> D. Marlow,<sup>31</sup> T. Matsubara,<sup>39</sup> S. Matzai,<sup>20</sup> S. Matsumoto,<sup>4</sup> T. Matsumoto,<sup>20</sup> Y. Mikami,<sup>38</sup>  
 K. Misono,<sup>20</sup> K. Miyabayashi,<sup>21</sup> H. Miyake,<sup>29</sup> H. Miyata,<sup>27</sup> L.C. Moffitt,<sup>19</sup> G.R. Moloney,<sup>19</sup> G.F. Moorhead,<sup>19</sup>  
 S. Mori,<sup>44</sup> T. Mori,<sup>4</sup> A. Murakami,<sup>32</sup> T. Nagamine,<sup>38</sup> Y. Nagasaka,<sup>10</sup> Y. Nagashima,<sup>29</sup> T. Nakadaira,<sup>39</sup> T. Nakamura,<sup>40</sup>  
 E. Nakano,<sup>20</sup> M. Nakao,<sup>9</sup> H. Nakazawa,<sup>4</sup> J.W. Nam,<sup>34</sup> Z. Natkaniec,<sup>25</sup> K. Neichi,<sup>37</sup> S. Nishida,<sup>17</sup> O. Nitoh,<sup>42</sup>  
 S. Noguchi,<sup>21</sup> T. Nozaki,<sup>9</sup> S. Ogawa,<sup>36</sup> T. Ohshima,<sup>20</sup> Y. Ohshima,<sup>40</sup> T. Okabe,<sup>20</sup> T. Okazaki,<sup>21</sup> S. Okuno,<sup>15</sup>  
 S.L. Olsen,<sup>8</sup> H. Ozaki,<sup>9</sup> P. Pakhlov,<sup>14</sup> H. Palka,<sup>25</sup> C.S. Park,<sup>33</sup> C.W. Park,<sup>16</sup> H. Park,<sup>18</sup> L.S. Peak,<sup>35</sup> M. Peters,<sup>8</sup>  
 L.E. Pilonen,<sup>46</sup> E. Prebys,<sup>31</sup> J.L. Rodriguez,<sup>8</sup> N. Root,<sup>2</sup> M. Rozanska,<sup>25</sup> K. Rybicki,<sup>25</sup> J. Ryuko,<sup>29</sup> H. Sagawa,<sup>9</sup>  
 Y. Sakai,<sup>9</sup> H. Sakamoto,<sup>17</sup> M. Satpathy,<sup>45</sup> A. Satpathy,<sup>45</sup> S. Schrenk,<sup>5</sup> S. Semenov,<sup>14</sup> K. Senyo,<sup>20</sup> Y. Settai,<sup>4</sup>  
 M.E. Sevior,<sup>19</sup> H. Shibuya,<sup>36</sup> B. Shwartz,<sup>2</sup> A. Sidorov,<sup>2</sup> S. Stanič,<sup>44</sup> A. Sugi,<sup>20</sup> A. Sugiyama,<sup>20</sup> K. Sumisawa,<sup>9</sup>  
 T. Sumiyoshi,<sup>9</sup> I. I. Sumi,<sup>9</sup> K. Sumi,<sup>3</sup> S. Sumi,<sup>47</sup> S. V. Sumi,<sup>9</sup> S. K. Sumi,<sup>8</sup> H. Taira,<sup>39</sup> T. Takahashi,<sup>28</sup>

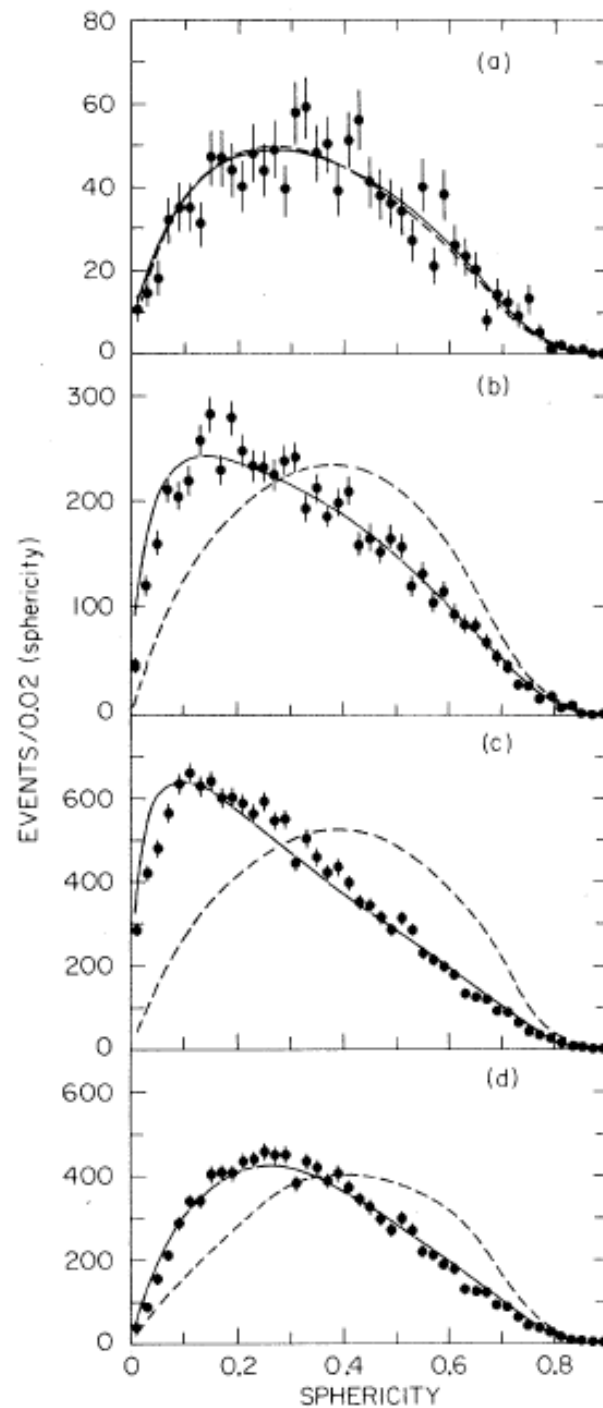
The enforced compact format of PRL has required that groups find the single telling figure that will make their point.

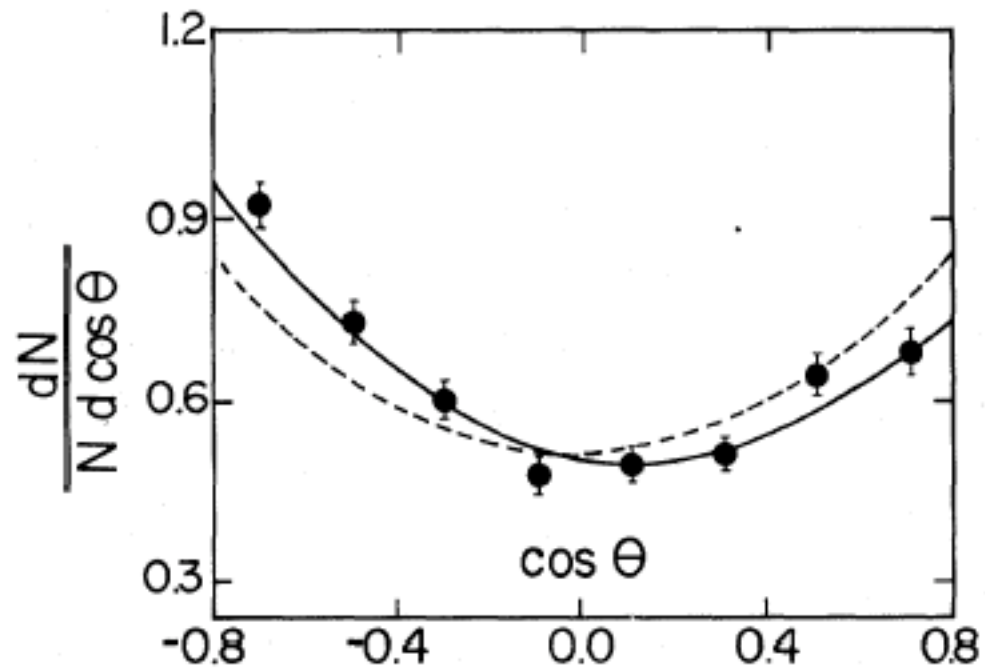
Many of these figures are now in the textbooks and provide the visual keys to our understanding of the Standard Model.



Bardon, Norton, Peoples, Sachs, and Lee-Franzini, 1965

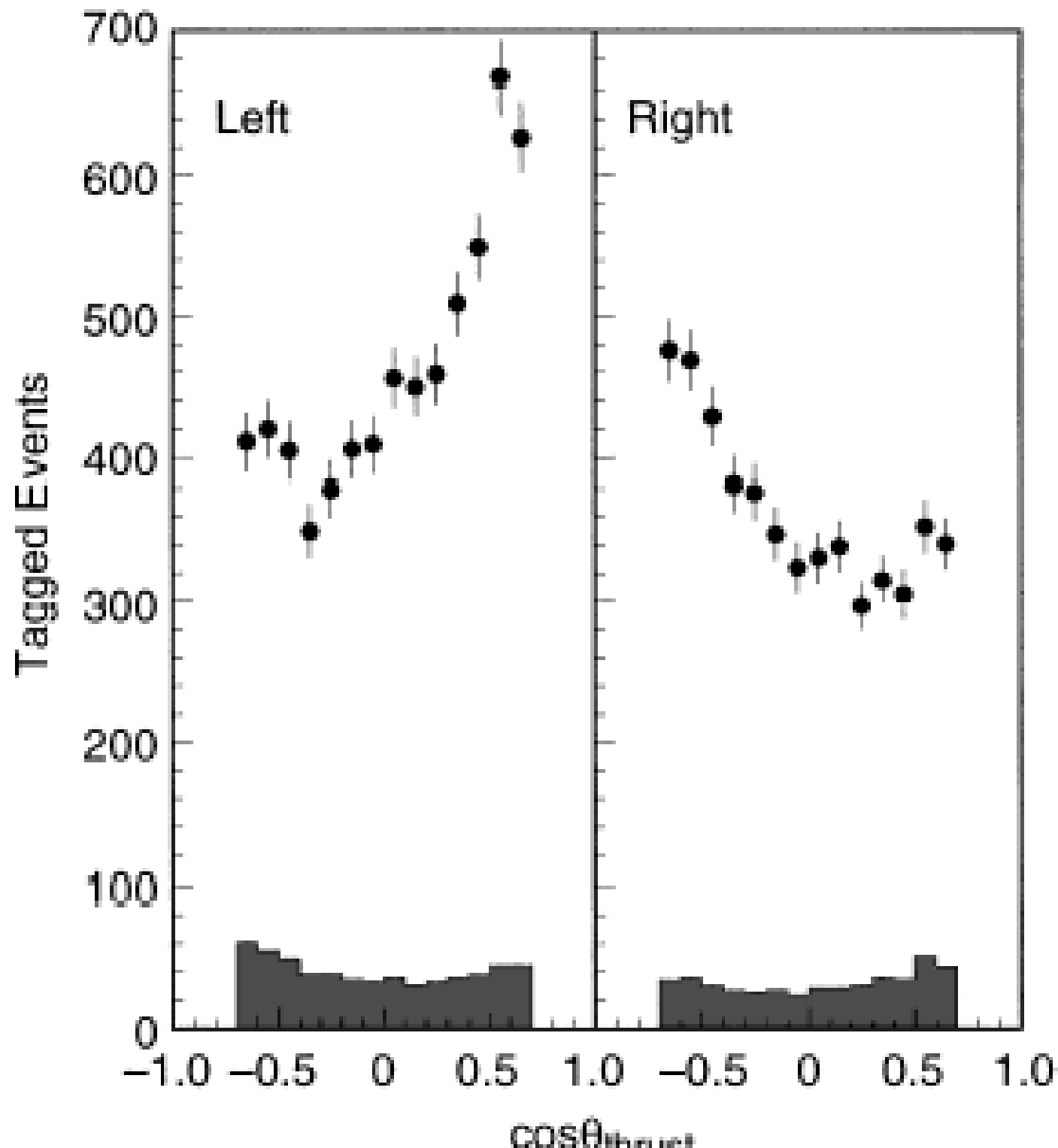
G. Hanson, et al.  
(Mark I collaboration)  
1975



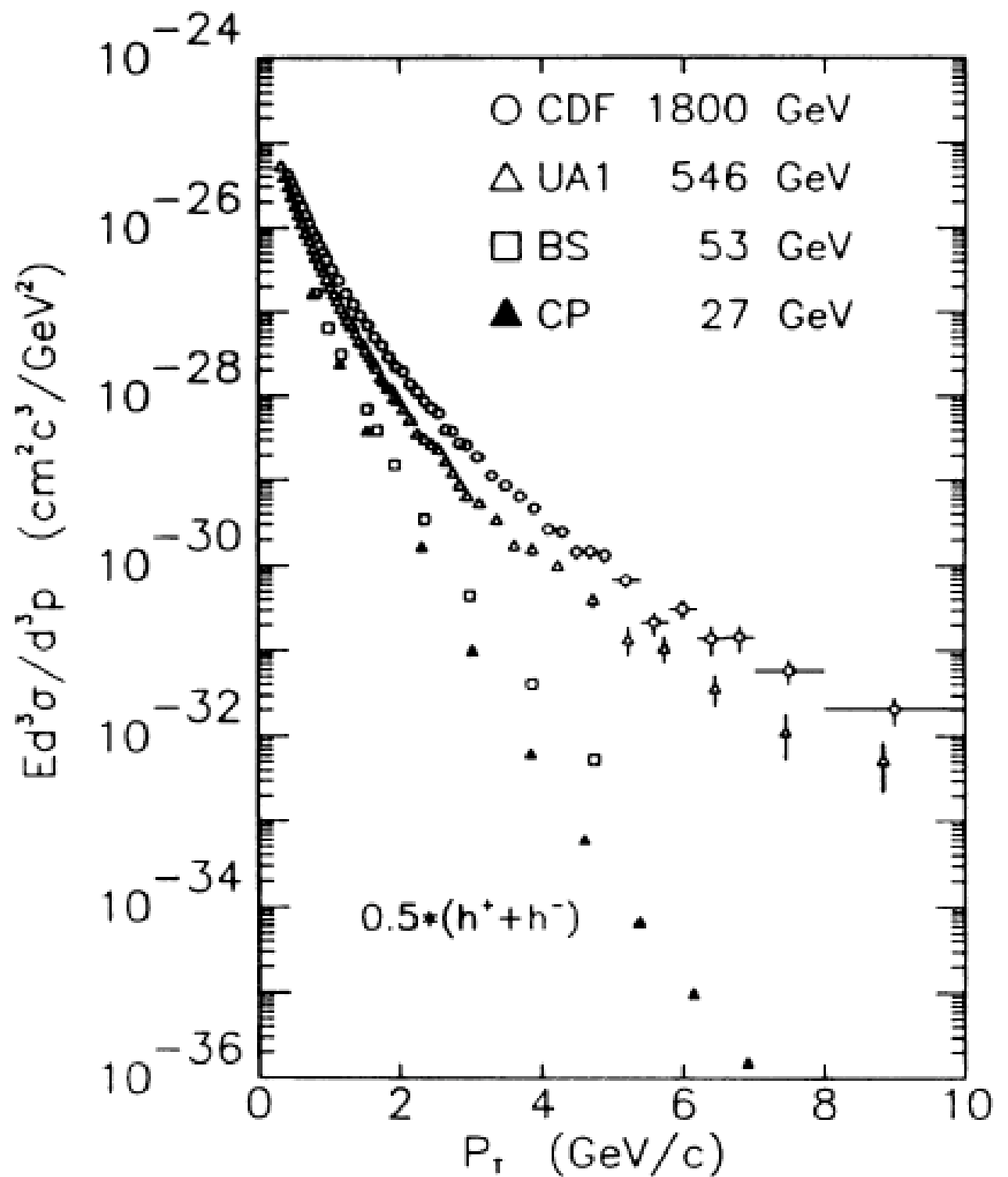


B.Adeva, et al. (Mark J collaboration), 1981

K. Abe, et al.  
SLD Collaboration  
1998



F. Abe, et al.  
CDF Collaboration  
1988



This last figure is from the first publication of the CDF collaboration in 1988.

It is interesting to look at the title page of this first PRL and the most recent PRL from CDF.



Transverse-Momentum Distributions of Charged Particles Produced in pp Interactions at sqrt(s) = 630 and 1800 GeV

F. Abe, (16) D. Amidei, (3) G. Apollinari, (11) G. Ascoli, (7) M. Atac, (4) P. Auchincloss, (14) A. R. Baden, (6) A. Barbaro-Galtieri, (9) V. E. Barnes, (12) F. Bedeschi, (11) S. Belforte, (11) G. Bellettini, (11) J. Bellinger, (17) J. Bensinger, (2) A. Beretvas, (14) P. Berge, (4) S. Bertolucci, (5) S. Bhadra, (7) M. Binkley, (4) R. Blair, (1) C. Blocker, (2) J. Boffill, (4) A. W. Booth, (4) G. Brandenburg, (6) D. Brown, (6) A. Byon, (12) K. L. Byrum, (17) M. Campbell, (13) R. Carey, (6) W. Carithers, (9) D. Carlsmith, (17) J. T. Carroll, (4) R. Cashmore, (4) F. Cervelli, (11) K. Chadwick, (4,12) T. Chapin, (13) G. Chiarelli, (11) W. Chinowsky, (9) S. Cihangir, (15) D. Cline, (17) D. Connor, (10) M. Contreras, (2) J. Cooper, (4) M. Cordelli, (5) M. Curatolo, (5) C. Day, (1) R. DelFabbro, (11) M. Dell'Orso, (11) L. DeMortier, (2) T. Devlin, (14) D. DiBitonto, (15) R. Diebold, (1) F. Dittus, (4) A. DiVirgilio, (11) J. E. Elias, (4) R. Ely, (9) S. Errede, (7) B. Esposito, (5) A. Feldman, (6) B. Flaugher, (14) E. Focardi, (11) G. W. Foster, (4) M. Franklin, (4,6,7) J. Freeman, (4) H. Frisch, (3) Y. Fukui, (9) A. F. Garfinkel, (12) P. Giannetti, (11) N. Giokaris, (13) P. Giromini, (5) L. Gladney, (10) M. Gold, (9) K. Goulianos, (13) C. Grosso-Pilcher, (1) C. Haber, (9) S. R. Hahn, (10) R. Handler, (17) R. M. Harris, (9) J. Hauser, (12) T. Hessing, (10) R. Hollebeck, (10) L. Holloway, (7) P. Hu, (14) B. Hubbard, (9) P. Hurst, (1) J. Huth, (4) H. Jensen, (4) R. P. Johnson, (4) U. Joshi, (14) R. W. Kadel, (4) T. Kamm, (15) S. Kanda, (16) D. A. Kardelis, (7) I. Karliner, (7) E. Kearns, (6) R. Kephart, (4) P. Kesten, (2) H. Keutelian, (7) S. Kim, (16) L. Kirsch, (2) K. Kondo, (10) U. Kruse, (7) S. E. Kuhlmann, (12) A. T. Laasanen, (12) W. Li, (1) T. Liss, (1) N. Lockyer, (10) F. Marchetto, (15) R. Markeloff, (17) L. A. Markosky, (17) P. McIntyre, (4) A. Menzione, (11) T. Meyer, (15) S. Mikamo, (8) M. Miller, (10) T. Mimashi, (16) S. Miscetti, (5) M. Mishina, (8) S. Miyashita, (16) N. Mondal, (17) S. Mori, (16) Y. Morita, (16) A. Mukherjee, (4) C. Newman-Holmes, (4) L. Nodulman, (17) R. Paoletti, (11) A. Para, (4) J. Patrick, (4) T. J. Phillips, (6) H. Piekarz, (2) R. Plunkett, (13) L. Pondrom, (17) J. Proudfoot, (1) G. Punzi, (1) D. Quarrie, (4) K. Ragan, (10) G. Redlinger, (3) J. Rhoades, (17) F. Rimondi, (4) L. Ristori, (11) T. Rohaly, (10) A. Roodman, (3) A. Sansoni, (5) R. Sard, (7) V. Scarpine, (7) P. Schlabach, (4) E. E. Schmidt, (4) P. Schoessow, (1) M. H. Schub, (12) R. Schwitters, (6) A. Scribano, (11) S. Segler, (1) M. Sekiguchi, (16) P. Sestini, (11) M. Shapiro, (6) M. Sheaff, (17) M. Shibata, (16) M. Shochet, (3) J. Siegrist, (9) P. Sinervo, (4) J. Skarha, (17) D. A. Smith, (7) F. D. Snider, (3) R. St. Denis, (6) A. Stefanini, (11) Y. Takaiwa, (16) K. Takikawa, (16) S. Tarem, (13) D. Theriot, (4) A. Tollestrup, (4) G. Tonelli, (11) Y. Tsay, (3) F. Ukegawa, (16) D. Underwood, (1) R. Vidal, (4) R. G. Wagner, (1) R. L. Wagner, (4) J. Walsh, (10) T. Watts, (14) R. Webb, (15) T. Westhusing, (7) S. White, (13) A. Wicklund, (1) H. H. Williams, (10) T. Yamanouchi, (4) A. Yamashita, (16) K. Yasuoka, (16) G. P. Yeh, (4) J. Yoh, (4) and F. Zetti, (11)

- (1)Argonne National Laboratory, Argonne, Illinois 60439
(2)Brandeis University, Waltham, Massachusetts 02254
(3)University of Chicago, Chicago, Illinois 60637
(4)Fermi National Accelerator Laboratory, Batavia, Illinois 60510
(5)Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare, Frascati, Italy
(6)Harvard University, Cambridge, Massachusetts 02138
(7)University of Illinois, Urbana, Illinois 61801
(8)National Laboratory for High Energy Physics (KEK), Tsukuba-gun, Ibaraki-ken 305, Japan
(9)Lawrence Berkeley Laboratory, Berkeley, California 94720
(10)University of Pennsylvania, Philadelphia, Pennsylvania 19104
(11)Istituto Nazionale di Fisica Nucleare, University and Scuola Normale Superiore di Pisa, Pisa, Italy
(12)Purdue University, West Lafayette, Indiana 47907
(13)Rockefeller University, New York, New York 10021
(14)Rutgers University, Piscataway, New Jersey 08854
(15)Texas A&M University, College Station, Texas 77843
(16)University of Tsukuba, Ibaraki 305, Japan
(17)University of Wisconsin, Madison, Wisconsin 53706

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Measurement of Lifetime and Decay-Width Difference in B0 -> J/psi phi Decays

T. Ashmura, (2) A. Abulafia, (1) J. Adelman, (3) T. Akesson, (4) M. G. Althoff, (5) D. Alvarez-Gaume, (6) S. Amato, (7) D. Andrei, (8) A. Antoniazzi, (9) A. Anzani, (10) J. Ausloos, (11) G. Apollinari, (12) A. Apperun, (13) T. Auzias, (14) A. Azhikov, (15) W. Adamus-Trojan, (16) A. Azzurro, (17) F. Azzi, (18) A. Baber, (19) A. Baber, (20) A. Baber, (21) A. Baber, (22) A. Baber, (23) A. Baber, (24) A. Baber, (25) A. Baber, (26) A. Baber, (27) A. Baber, (28) A. Baber, (29) A. Baber, (30) A. Baber, (31) A. Baber, (32) A. Baber, (33) A. Baber, (34) A. Baber, (35) A. Baber, (36) A. Baber, (37) A. Baber, (38) A. Baber, (39) A. Baber, (40) A. Baber, (41) A. Baber, (42) A. Baber, (43) A. Baber, (44) A. Baber, (45) A. Baber, (46) A. Baber, (47) A. Baber, (48) A. Baber, (49) A. Baber, (50) A. Baber, (51) A. Baber, (52) A. Baber, (53) A. Baber, (54) A. Baber, (55) A. Baber, (56) A. Baber, (57) A. Baber, (58) A. Baber, (59) A. Baber, (60) A. Baber, (61) A. Baber, (62) A. Baber, (63) A. 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The collaboration structure leads one to think differently about the role of the scientific paper.

For me, still, a paper is a nugget of insight. I sign my name to it and see how it will be received by the world.

For members of CDF, there are such papers, but these are not PRL's.

# Symmetry Magazine, Oct/Nov 2007: Deconstruction of ...

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**Observation of WZ Production**

A. Abdelsalam,<sup>25</sup> J. Adelman,<sup>12</sup> T. Affolder,<sup>26</sup> T. Akimov,<sup>26</sup> M.G. Albrow,<sup>12</sup> D. Ambrose,<sup>12</sup> S. Amerio,<sup>27</sup> D. Amidei,<sup>28</sup> A. Anastopoulos,<sup>28</sup> K. Amundson,<sup>17</sup> A. Anselmi,<sup>19</sup> J. Antos,<sup>14</sup> M. Aoki,<sup>29</sup> G. Apollinari,<sup>12</sup> J.-F. Arguin,<sup>24</sup> T. Arfaoui,<sup>28</sup> A. Arifovic,<sup>12</sup> W. Ashmanskas,<sup>17</sup> A. Auld,<sup>1</sup> F. Azfar,<sup>1</sup> P. Azzi-Bucchetta,<sup>12</sup> P. Azzi,<sup>12</sup> N. Bacchetta,<sup>12</sup> W. Badgett,<sup>17</sup> A. Barbaro-Galtieri,<sup>29</sup> Y. E. Barnes,<sup>22</sup> B. A. Barnett,<sup>22</sup> S. Baroni,<sup>12</sup> V. Barss,<sup>12</sup> G. Barzani,<sup>12</sup> F. Bedeschi,<sup>12</sup> S. Behari,<sup>12</sup> S. Belloni,<sup>20</sup> G. Bellotti,<sup>20</sup> J. Bellinger,<sup>20</sup> A. Benjamin,<sup>20</sup> A. Benvenuti,<sup>20</sup> J. Bergring,<sup>20</sup> T. 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Fernandez,<sup>12</sup> R. Field,<sup>12</sup> G. Flanagan,<sup>12</sup> A. Fogliani,<sup>12</sup> S. Foster,<sup>12</sup> G. W. Foster,<sup>12</sup> M. Franklin,<sup>12</sup> J. C. Freeman,<sup>12</sup> I. Furic,<sup>12</sup> M. Gallmann,<sup>12</sup> J. Galyash,<sup>12</sup> J. E. Garcia,<sup>12</sup> F. Garberan,<sup>12</sup> A. F. Garfield,<sup>12</sup> C. Gay,<sup>12</sup> H. Geurts,<sup>12</sup> D. Geurts,<sup>12</sup> S. Giguere,<sup>12</sup> P. Giacomini,<sup>12</sup> A. Gibson,<sup>12</sup> K. Gibson,<sup>12</sup> J. L. Ginnoff,<sup>12</sup> C. Glombig,<sup>12</sup> N. Gokhale,<sup>12</sup> M. Goussard,<sup>12</sup> P. Goussard,<sup>12</sup> M. Goussard,<sup>12</sup> G. Goussard,<sup>12</sup> V. Glubokov,<sup>12</sup> D. Gluzinski,<sup>12</sup> M. Gold,<sup>12</sup> N. Goldstein,<sup>12</sup> J. Goldstein,<sup>12</sup> A. Goldwasser,<sup>12</sup> G. Gomez,<sup>12</sup> G. Gomez-Ceballos,<sup>12</sup> M. Goncharov,<sup>12</sup> G. Gonzalez,<sup>12</sup> I. Gonzalez,<sup>12</sup> A. T. Goshaw,<sup>12</sup> K. Goulianos,<sup>12</sup> A. Grosse,<sup>12</sup> M. Griffiths,<sup>12</sup> S. Grinvald,<sup>12</sup> C. Grosso-Palcher,<sup>12</sup> R. C. Group,<sup>12</sup> U. Grunert,<sup>12</sup> J. Guzman de Costa,<sup>12</sup> Z. Gunay-Unatan,<sup>12</sup> C. Haber,<sup>12</sup> K. Hahn,<sup>12</sup> S. R. Hahn,<sup>12</sup> E. Halkiadakis,<sup>12</sup> A. Hamilton,<sup>12</sup> B.-Y. Han,<sup>12</sup> J. Y. Han,<sup>12</sup> R. Hanlon,<sup>12</sup> F. Happacher,<sup>12</sup> K. Hara,<sup>12</sup> M. Hara,<sup>12</sup> S. Harnik,<sup>12</sup> R. E. Hart,<sup>12</sup> R. M. Harris,<sup>12</sup> M. Hartz,<sup>12</sup> K. Hatada,<sup>12</sup> J. Hauser,<sup>12</sup> A. Heijboer,<sup>12</sup> B. Heinemann,<sup>12</sup> J. Heinrich,<sup>12</sup> C. Henderson,<sup>12</sup> M. Henderson,<sup>12</sup> J. Hewson,<sup>12</sup> D. Hidas,<sup>12</sup> C. S. Hill,<sup>12</sup> D. Hirschbuhl,<sup>12</sup> A. Hocker,<sup>12</sup> A. Holloway,<sup>12</sup> C. Hsu,<sup>12</sup> M. Huschke,<sup>12</sup> S. C. Hsu,<sup>12</sup> B. T. Huffman,<sup>12</sup> R. E. Hughes,<sup>12</sup> U. Huisman,<sup>12</sup> J. Huston,<sup>12</sup> J. Incandella,<sup>12</sup> G. Interozzi,<sup>12</sup> M. Ieri,<sup>12</sup> Y. Ishikawa,<sup>12</sup> A. Ivanov,<sup>12</sup> B. Iyutin,<sup>12</sup> E. James,<sup>12</sup> D. Jiang,<sup>12</sup> B. Juythika,<sup>12</sup> D. Ivanc,<sup>12</sup> H. Jones,<sup>12</sup> E. J. Jones,<sup>12</sup> S. Jindariani,<sup>12</sup> M. Jones,<sup>12</sup> K. K. Jon,<sup>12</sup> S. Y. Jun,<sup>12</sup> J. E. Jung,<sup>12</sup> T. R. Junk,<sup>12</sup> T. Kamon,<sup>12</sup> P. E. Karchin,<sup>12</sup> Y. Kato,<sup>12</sup> Y. Kato,<sup>12</sup> R. Keizer,<sup>12</sup> U. Kerzel,<sup>12</sup> V. Khachatryan,<sup>12</sup> B. Kilminster,<sup>12</sup> D. H. Kim,<sup>12</sup> H. S. Kim,<sup>12</sup> J. E. Kim,<sup>12</sup> M. J. Kim,<sup>12</sup> S. B. Kim,<sup>12</sup> S. H. Kim,<sup>12</sup> Y. K. Kim,<sup>12</sup> N. Kimura,<sup>12</sup> L. Kirchner,<sup>12</sup> S. Klimek,<sup>12</sup> M. Klueber,<sup>12</sup> B. Knutzen,<sup>12</sup> B. R. Ko,<sup>12</sup> K. Kondo,<sup>12</sup> D. J. Kong,<sup>12</sup> J. Konigsmann,<sup>12</sup> A. Kopylov,<sup>12</sup> A. Y. Kotwal,<sup>12</sup> A. Kovalenko,<sup>12</sup> A. C. Krauss,<sup>12</sup> J. Krauss,<sup>12</sup> I. Kravchenko,<sup>12</sup> M. Kruss,<sup>12</sup> J. Krout,<sup>12</sup> N. Kravtsov,<sup>12</sup> M. Kruse,<sup>12</sup> V. Krutikov,<sup>12</sup> T. Kuba,<sup>12</sup> S. E. Kuhlmann,<sup>12</sup> T. Kuba,<sup>12</sup> Y. Kuroki,<sup>12</sup> S. Kwang,<sup>12</sup> A. T. Laasanen,<sup>12</sup> S. Lai,<sup>12</sup> S. Lami,<sup>12</sup> S. Lammert,<sup>12</sup> M. Lammert,<sup>12</sup> R. L. Landry,<sup>12</sup> K. Lammert,<sup>12</sup> A. Lath,<sup>12</sup> G. Latino,<sup>12</sup> I. Lazzarini,<sup>12</sup> T. LeCompte,<sup>12</sup> J. Lee,<sup>12</sup> J. Lee,<sup>12</sup> Y. J. Lee,<sup>12</sup> S. W. Lee,<sup>12</sup> R. Leifert,<sup>12</sup> N. Leonardi,<sup>12</sup> S. Leone,<sup>12</sup> S. Levy,<sup>12</sup> J. D. Lewis,<sup>12</sup> C. Lin,<sup>12</sup> C. S. Lin,<sup>12</sup> M. Lindgren,<sup>12</sup> E. Lipeles,<sup>12</sup> A. Lister,<sup>12</sup> D. G. Livshits,<sup>12</sup> T. Liu,<sup>12</sup> N. S. Lockyer,<sup>12</sup> A. Logunov,<sup>12</sup> M. Loret,<sup>12</sup> P. Lovas,<sup>12</sup> R.-S. Lu,<sup>12</sup> D. Lucchesi,<sup>12</sup> P. Lujan,<sup>12</sup> P. Lujan,<sup>12</sup> G. Luque,<sup>12</sup> L. Lyons,<sup>12</sup> J. Lyu,<sup>12</sup> R. Lytkin,<sup>12</sup> E. Lytkin,<sup>12</sup> P. Mack,<sup>12</sup> D. MacQueen,<sup>12</sup> R. Madrak,<sup>12</sup> K. Maehata,<sup>12</sup> R. Maitland,<sup>12</sup> T. Maki,<sup>12</sup> P. Malinin,<sup>12</sup> S. Malik,<sup>12</sup> G. Manca,<sup>12</sup> J. Margalec,<sup>12</sup> R. Marziani,<sup>12</sup> C. P. Marziani,<sup>12</sup> A. Martin,<sup>12</sup> M. Martin,<sup>12</sup> V. Martin,<sup>12</sup> M. Martinez,<sup>12</sup> T. Maruyama,<sup>12</sup> P. Mastromarino,<sup>12</sup> T. Matsubuchi,<sup>12</sup> H. Matsuyama,<sup>12</sup> M. E. Mattson,<sup>12</sup> E. Martin,<sup>12</sup> F. Mazzanti,<sup>12</sup> K. McCarthy,<sup>12</sup> K. S. McFarland,<sup>12</sup> P. McInnes,<sup>12</sup> R. McNulty,<sup>12</sup> A. Mohr,<sup>12</sup> M. Mohr,<sup>12</sup> S. Morozov,<sup>12</sup> A. Morozov,<sup>12</sup> P. Moroni,<sup>12</sup> C. Myrseth,<sup>12</sup> C. Myrseth,<sup>12</sup> J. Miller,<sup>12</sup> R. Miller,<sup>12</sup> C. Mills,<sup>12</sup> M. Mitter,<sup>12</sup> A. Mitra,<sup>12</sup> G. Mitselmakher,<sup>12</sup> A. Miyamoto,<sup>12</sup> S. Moad,<sup>12</sup> N. Moggi,<sup>12</sup> B. Mohr,<sup>12</sup> R. Moon,<sup>12</sup> M. Moon,<sup>12</sup> P. Mousaev,<sup>12</sup> J. Mousaev,<sup>12</sup> J. Mousaev,<sup>12</sup> A. Mukherjee,<sup>12</sup> Th. Muller,<sup>12</sup> R. Mumford,<sup>12</sup> P. Murat,<sup>12</sup> J. Nachtman,<sup>12</sup>

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A. Nagano,<sup>12</sup> J. Nagayama,<sup>12</sup> I. Nakano,<sup>12</sup> A. Nappi,<sup>12</sup> V. Napolitano,<sup>12</sup> C. Niu,<sup>12</sup> M. S. Nisar,<sup>12</sup> J. Nielsen,<sup>12</sup> T. Nigam,<sup>12</sup> L. Nodulman,<sup>12</sup> O. Norniello,<sup>12</sup> E. Nurse,<sup>12</sup> S. H. Oh,<sup>12</sup> Y. D. Oh,<sup>12</sup> I. Okun,<sup>12</sup> T. Okawa,<sup>12</sup> T. Okawa,<sup>12</sup> R. Oller,<sup>12</sup> S. Ota,<sup>12</sup> K. Otonari,<sup>12</sup> C. Pagliarone,<sup>12</sup> E. Palencia,<sup>12</sup> V. Papadimitriou,<sup>12</sup> A. A. Papanicolaou,<sup>12</sup> B. Parks,<sup>12</sup> S. Pappas,<sup>12</sup> J. Patrick,<sup>12</sup> G. Pastore,<sup>12</sup> M. Pastore,<sup>12</sup> C. Pass,<sup>12</sup> D. E. Pellet,<sup>12</sup> A. Pemas,<sup>12</sup> T. J. Phillips,<sup>12</sup> G. Placitelli,<sup>12</sup> J. Plesch,<sup>12</sup> L. Poma,<sup>12</sup> K. Pons,<sup>12</sup> C. Pagan,<sup>12</sup> L. Pondrom,<sup>12</sup> S. Porcell,<sup>12</sup> G. Pradler,<sup>12</sup> N. Prasad,<sup>12</sup> F. Prakhov,<sup>12</sup> A. Prentiss,<sup>12</sup> J. Prentiss,<sup>12</sup> F. Prentiss,<sup>12</sup> G. Prentiss,<sup>12</sup> J. Prentiss,<sup>12</sup> J. Rademacher,<sup>12</sup> A. Rahaman,<sup>12</sup> N. Rajan,<sup>12</sup> S. Rappas,<sup>12</sup> B. Rebort,<sup>12</sup> V. Rebecq,<sup>12</sup> P. Reuter,<sup>12</sup> M. Rescigno,<sup>12</sup> S. Richter,<sup>12</sup> E. Rimini,<sup>12</sup> L. Ristori,<sup>12</sup> A. Robinson,<sup>12</sup> T. Rodriguez,<sup>12</sup> E. Rogers,<sup>12</sup> S. Roloff,<sup>12</sup> R. Roser,<sup>12</sup> M. Rossi,<sup>12</sup> R. Rossin,<sup>12</sup> A. Ruiz,<sup>12</sup> J. Russ,<sup>12</sup> V. Rusu,<sup>12</sup> H. Saarikko,<sup>12</sup> S. Saha,<sup>12</sup> A. Saha,<sup>12</sup> S. Saha,<sup>12</sup> W. K. Sakumoto,<sup>12</sup> G. Salamanna,<sup>12</sup> O. Sahel,<sup>12</sup> D. Salsbery,<sup>12</sup> C. Sanchez,<sup>12</sup> L. Santoni,<sup>12</sup> S. Sarkar,<sup>12</sup> L. Sartori,<sup>12</sup> K. Sato,<sup>12</sup> P. Savard,<sup>12</sup> A. Savyt,<sup>12</sup> S. Savyt,<sup>12</sup> T. Scheide,<sup>12</sup> P. Schlichbach,<sup>12</sup> E. E. Schmidt,<sup>12</sup> M. P. Schmidt,<sup>12</sup> M. Schmidt,<sup>12</sup> T. Schwarz,<sup>12</sup> L. Scodellari,<sup>12</sup> A. L. Scott,<sup>12</sup> A. Scribano,<sup>12</sup> F. Scott,<sup>12</sup> A. Seiden,<sup>12</sup> S. Seidel,<sup>12</sup> Y. Seiya,<sup>12</sup> A. Semenov,<sup>12</sup> L. Sereno-Kennedy,<sup>12</sup> A. Myrta,<sup>12</sup> M. D. Shapiro,<sup>12</sup> T. Shears,<sup>12</sup> F. E. Sheppard,<sup>12</sup> D. Sherman,<sup>12</sup> M. Shimozuma,<sup>12</sup> M. Shochet,<sup>12</sup> Y. Shon,<sup>12</sup> I. Shreyber,<sup>12</sup> A. Sidoti,<sup>12</sup> P. Sinervo,<sup>12</sup> A. Siskiyev,<sup>12</sup> J. Spiller,<sup>12</sup> A. J. Slaughter,<sup>12</sup> J. Slawinski,<sup>12</sup> K. Sliwa,<sup>12</sup> J. R. Smith,<sup>12</sup> F. D. Snider,<sup>12</sup> R. Sobka,<sup>12</sup> M. Soderberg,<sup>12</sup> A. Sola,<sup>12</sup> S. Somalwar,<sup>12</sup> V. Sosin,<sup>12</sup> J. Spalding,<sup>12</sup> J. Spillner,<sup>12</sup> J. Spillner,<sup>12</sup> P. Spillner,<sup>12</sup> M. Stanitzki,<sup>12</sup> A. Stavitskiy-Polyakov,<sup>12</sup> R. St. Denis,<sup>12</sup> B. Steier,<sup>12</sup> G. Steier-Christen,<sup>12</sup> D. Steinkamp,<sup>12</sup> J. Stenlund,<sup>12</sup> D. Stuart,<sup>12</sup> J. S. Suh,<sup>12</sup> A. Sukhanov,<sup>12</sup> H. Sun,<sup>12</sup> T. Suzuki,<sup>12</sup> A. Taffard,<sup>12</sup> K. Takahashi,<sup>12</sup> Y. Takahashi,<sup>12</sup> K. Takahara,<sup>12</sup> M. Tanaka,<sup>12</sup> R. Tanaka,<sup>12</sup> M. Taniuchi,<sup>12</sup> P. K. Tang,<sup>12</sup> K. Taniuchi,<sup>12</sup> J. Thoen,<sup>12</sup> A. S. Thompson,<sup>12</sup> E. Thomson,<sup>12</sup> P. Tipton,<sup>12</sup> V. Tisserand,<sup>12</sup> S. Tkaczyk,<sup>12</sup> D. Toback,<sup>12</sup> S. Toker,<sup>12</sup> K. Tollefson,<sup>12</sup> T. Tomura,<sup>12</sup> D. Torelli,<sup>12</sup> S. Torre,<sup>12</sup> D. Torretta,<sup>12</sup> S. Tosi,<sup>12</sup> W. Trischak,<sup>12</sup> R. Truchin,<sup>12</sup> S. Tsuno,<sup>12</sup> N. Turin,<sup>12</sup> F. Ungerer,<sup>12</sup> J. Ungerer,<sup>12</sup> T. Ungerer,<sup>12</sup> S. Uozumi,<sup>12</sup> D. Uzun,<sup>12</sup> M. Valdivia,<sup>12</sup> R. Vanaga,<sup>12</sup> N. van Remortel,<sup>12</sup> A. Vargas,<sup>12</sup> E. Varma,<sup>12</sup> F. Vazquez,<sup>12</sup> G. Veloso,<sup>12</sup> G. Veneziano,<sup>12</sup> V. Verma,<sup>12</sup> R. Vidal,<sup>12</sup> I. Vila,<sup>12</sup> R. Vila,<sup>12</sup> T. Vireo,<sup>12</sup> I. Vitell,<sup>12</sup> I. Vitell,<sup>12</sup> S. Vitell,<sup>12</sup> G. Vulpes,<sup>12</sup> F. Wirthwein,<sup>12</sup> P. Wagner,<sup>12</sup> R. G. Wagner,<sup>12</sup> R. L. Wagner,<sup>12</sup> J. Wagner,<sup>12</sup> W. Wagner,<sup>12</sup> E. Wallby,<sup>12</sup> S. M. Wang,<sup>12</sup> A. Warburton,<sup>12</sup> S. Wasiecha,<sup>12</sup> D. Waters,<sup>12</sup> M. Weinberger,<sup>12</sup> W. C. Wester III,<sup>12</sup> B. Whitehorn,<sup>12</sup> D. Whitehorn,<sup>12</sup> A. B. Wicklund,<sup>12</sup> E. Wicklund,<sup>12</sup> G. Williams,<sup>12</sup> H. H. Williams,<sup>12</sup> P. Wilson,<sup>12</sup> B. L. Witent,<sup>12</sup> P. Wlasiuk,<sup>12</sup> S. Wolbers,<sup>12</sup> C. Wolfe,<sup>12</sup> T. Wright,<sup>12</sup> K. Wu,<sup>12</sup> S. M. Wyatt,<sup>12</sup> A. Yagci,<sup>12</sup> K. Yamamoto,<sup>12</sup> J. Yamada,<sup>12</sup> T. Yamashita,<sup>12</sup> C. Yang,<sup>12</sup> U. K. Yang,<sup>12</sup> Y. C. Yang,<sup>12</sup> W. M. Yao,<sup>12</sup> G. P. Yeh,<sup>12</sup> J. Yeh,<sup>12</sup> K. Yorita,<sup>12</sup> T. Yoshida,<sup>12</sup> G. B. Yu,<sup>12</sup> I. Yu,<sup>12</sup> S. S. Yu,<sup>12</sup> J. C. Yun,<sup>12</sup> L. Zanello,<sup>12</sup> A. Zanzi,<sup>12</sup> I. Zang,<sup>12</sup> X. Zhang,<sup>12</sup> J. Zhao,<sup>12</sup> and S. Zucchelli<sup>12</sup>

**CDF Collaboration**

<sup>1</sup>Institute of Physics, Academia Sinica, Taipei, Taiwan 10728, Republic of China  
<sup>2</sup>Argonne National Laboratory, Argonne, Illinois 60439, USA  
<sup>3</sup>Institut de Física d'Altes Energies, Universitat Autònoma de Barcelona, E-08193, Bellaterra (Barcelona), Spain  
<sup>4</sup>Baylor University, Waco, Texas 76798, USA  
<sup>5</sup>INFN Sezione di Fisica Nucleare, University of Bologna, I-40127 Bologna, Italy  
<sup>6</sup>Brandeis University, Waltham, Massachusetts 02454, USA  
<sup>7</sup>University of California, Davis, Davis, California 95616, USA  
<sup>8</sup>University of California, Los Angeles, Los Angeles, California 90024, USA  
<sup>9</sup>University of California, San Diego, La Jolla, California 92093, USA  
<sup>10</sup>University of California, Santa Barbara, Santa Barbara, California 93106, USA  
<sup>11</sup>Instituto de Física de Cantabria, CSIC-University of Cantabria, 39005 Santander, Spain  
<sup>12</sup>Cornell University, Ithaca, New York 14853, USA  
<sup>13</sup>Florida State University, Tallahassee, Florida 32306, USA  
<sup>14</sup>University of Florida, Gainesville, Florida 32611, USA  
<sup>15</sup>University of Georgia, Athens, Georgia 30602, USA  
<sup>16</sup>Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare, I-00044 Frascati, Italy  
<sup>17</sup>University of Geneva, CH-1213 Geneva 4, Switzerland  
<sup>18</sup>Glasgow University, Glasgow G12 8QQ, United Kingdom  
<sup>19</sup>Harvard University, Cambridge, Massachusetts 02138, USA

9 married couples, 1 set of identical twins, brother of Sally Field, organizer of the CDF Dragon Boat. But, who wrote the paper?

## CDF Run 2 Electroweak Public Results

For more information, contact the electroweak conveners, [Eva Halkiadakis](#), [Mark Lancaster](#), [Larry Nodulman](#)

### W Mass and W Width

Analysis	Results	Data Sets	Documentation
<a href="#">W mass</a> Jan 2007	$80413 \pm 34 \text{ (stat.)} \pm 34 \text{ (syst.) MeV}/c^2$ $= 80413 \pm 48 \text{ MeV}/c^2$ <i>Single most precise measurement to date!</i>	200pb <sup>-1</sup>	<a href="#">PRL 99, 151801</a> <a href="#">(hep-ex/0707.0085)</a>  <a href="#">hep-ex/0708.3642</a> (Accepted by PRD!)
<a href="#">W width</a> Feb 2007	$\Gamma_W = 2032 \pm 45 \text{ (stat.)} \pm 57 \text{ (syst.) MeV}$ $= 2032 \pm 73 \text{ MeV}$ <i>The world's most precise single direct measurement!</i>	350pb <sup>-1</sup>	<a href="#">PRL 100 071801 (2008)</a> <a href="#">(hep-ex/0710.4112)</a>

### Diboson Production

Analysis	Results	Data Sets	Documentation
<b>NEW!</b> <a href="#">WZ(<math>\rightarrow 3l, l=e,\mu</math>) cross section</a> Aug 2007	$\sigma(\text{ppbar} \rightarrow \text{WZ}) = 4.3 + 1.4 - 1.1 \text{ pb}$	1.9fb <sup>-1</sup>	<a href="#">PRL 98, 161801</a> <a href="#">(hep-ex/0702027)</a> Describing 1.1fb <sup>-1</sup> observation
<b>NEW!</b> <a href="#">WZ Anomalous Triple Gauge Couplings</a> Jan 2008	$\Lambda = 2.0$ $-0.13 < \lambda < 0.14$ $-0.13 < \Delta g < 0.23$ $-0.76 < \Delta \kappa < 1.18$	1.9fb <sup>-1</sup>	Public Note (coming soon)
<b>NEW!</b> <a href="#">First measurement of ZZ production</a> Jan 2008	$\sigma(\text{ppbar} \rightarrow \text{ZZ}) = 1.4 + 0.7 - 0.6 \text{ pb}$ (4.4 $\sigma$ significance)	1.9fb <sup>-1</sup>	<a href="#">hep-ex/0801.4806</a> (Submitted to PRL)



# Measurement of WZ Production in $WZ \rightarrow ll\nu$ using $2 \text{ fb}^{-1}$ of ppbar Collisions at $\sqrt{s}=1.96 \text{ TeV}$



- **Authors:** [fkw@fnal.gov](mailto:fkw@fnal.gov)>Shih-Chieh Hsu, Elliot Lipeles, Mark Neubauer, Matt Norman, Rami Vanguri, Frank Wurthwein.
- **Blessed:** August 10, 2007
- **Data:** Run II, 1.9/fb
- **Note:** [Description with more details](#)

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The reason given for the anonymity of publication in large collaborations is that the data gathering and analysis is a collective effort. Hundreds of person-years are required to build the subdetectors, write the analysis software, design particle identification algorithms, perform calibrations.

Thus, one hears, the data analysts, who sit on top of this effort, do not deserve personal credit.

But this is a lazy viewpoint. **The contributors at all levels deserve personal credit, and no one receives it.**

The last vestige of a personal, signed, public document in HEP is the Ph.D. thesis.

These are now collected by the accelerator laboratories and served on the World-Wide Web.

These theses are a treasure-trove of information.



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1) A measurement of the production of jets in association with a  $W$  boson at the Tevatron using data collected with the CDF experiment. Ben Cooper (University Coll. London). FERMILAB-TM-2008-010. Ph.D. thesis (Advisors: Dr. David Waters, Dr. Mark La

References | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvma](#)  
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## CHAPTER 10. THE CROSS-SECTION RESULTS

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$$\sigma'(W \rightarrow ev + X) = 798 \pm 2.2(\text{stat.}) \pm 40(\text{sys.}) \pm 48(\text{lum.}) \text{ pb}$$

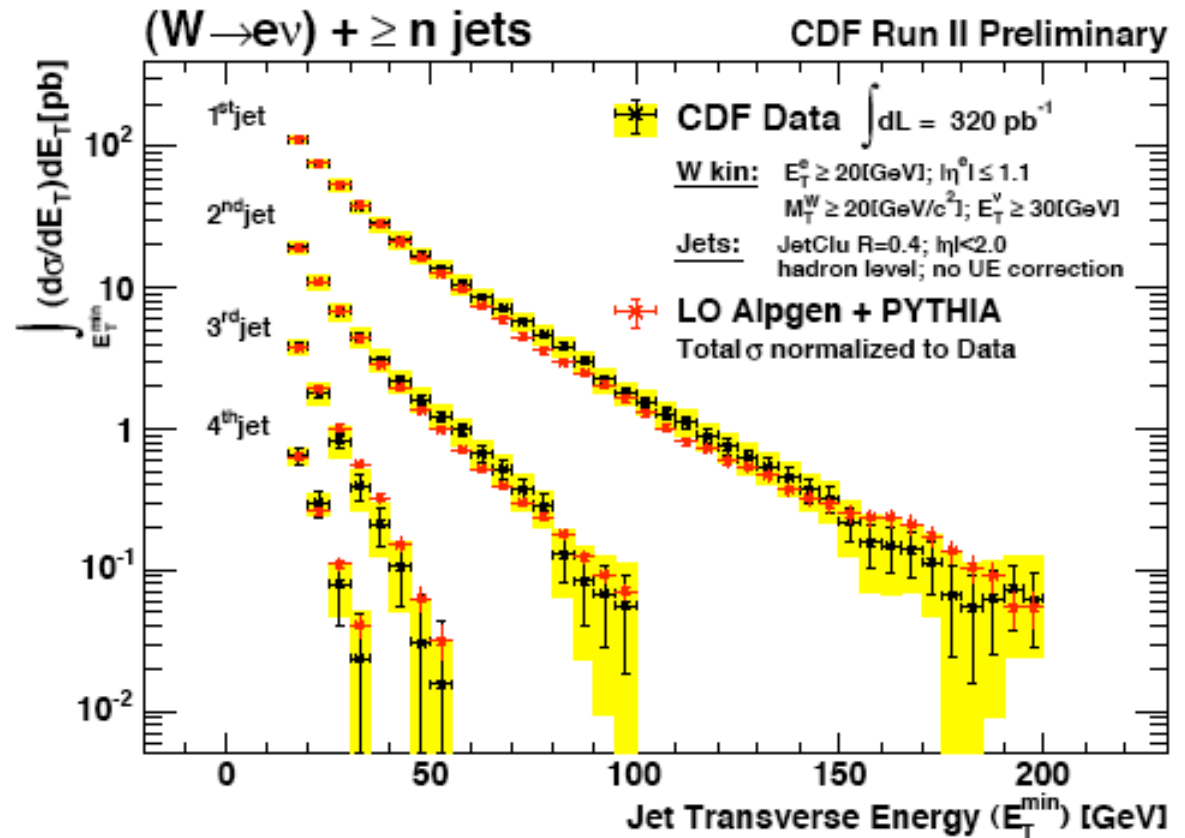


Figure 10.6: The measured first, second, third and fourth jet integrated cross-section results. The black error bars indicate the statistical error and the yellow band the systematic. Also shown is the ELO ALPGEN + PYTHIA prediction, normalised to the measured inclusive cross-section.

Our discussion has now led us into another topic:

The diversity of means of communication now available to particle physicists.

The story here actually begins with the formalization of the preprint, an invention of the SLAC Library in 1971.



staff of the SLAC library, June 1971:

Barbara Rupp, Bob Gex, Louise Addis, Rita Taylor, Bennie Hicks

In the 1970's, the SLAC library put out a weekly list of preprints received. It was correct etiquette to send a copy of your newly submitted papers to all major laboratories, and it was a necessity to send an express copy to SLAC.

In the 1980's, with a QSPIRES account, one could log into the SLAC library on the Internet and search the preprint database.

In 1991, Paul Kunz wrote a http interface to QSPIRES. This was the first WWW application!

These developments defined a new scale of 'rapid publication', with which no journal could compete.

Also in 1991, Paul Ginsparg created an automatic engine allowing anyone in the world to post a scientific paper that would be viewable by the whole community. This facility was xxx.lanl.gov, the ancestor of the current arXiv.



So now we are receiving scientific information from many sides.

formal refereed journal articles

refereed letters articles

“public notes” amplifying refereed articles

Ph.D. theses

“public notes” of preliminary results

conference presentations

preprints that never reach publication

At the extreme, anyone with a Web site can be a scientific publisher.

CDF Run II QCD Public Page



**Public Results:**  
[Overview](#)  
[Detailed List](#)

**QCD Conveners:**  
[Sasha Pronko](#)  
[Ken Hatakeyama](#)

[CDF](#)

[CDF Publications](#)  
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[CDF Public Talks](#)

[CDF Run I QCD](#)

# CDF Run II QCD Group Results

Results are sorted as follows: [Preliminary](#) [Submitted](#) [Published](#)

## Preliminary

Analysis	Dataset	Last Update
<b>Jets</b>		
<a href="#">Inclusive Jet Production using the Midpoint Jet Algorithm</a>	1.13 fb-1	August 2007
<a href="#">Dijet Production</a>	1.13 fb-1	March 2007
<b>Heavy Flavor Jets</b>		
<a href="#">Inclusive b-jet Production</a>	300 pb-1	September 2005
<a href="#">b-bbar Dijet Production using SVT</a>	260 pb-1	April 2007
<a href="#">Z + b-jet</a>	2.0 fb-1	February 2008
<a href="#">Photon + Heavy Flavor Production</a>	340 pb-1	July 2006
<a href="#">Photon + Heavy Flavor Production using SVT</a>	208 pb-1	October 2006
<a href="#">b-jet Shapes</a>	300 pb-1	October 2006
<b>Underlying Event / Fragmentation</b>		
<a href="#">Underlying Event in Inclusive Jet Production</a>	75 pb-1	April 2003
<a href="#">Kt Distributions of Particles in Jets</a>	774 pb-1	July 2006
<b>Diffraction / Exclusive Production</b>		
<a href="#">Diffractive W and Z Production</a>	0.6 fb-1	April 2008
<a href="#">Diffractive Dijet Production</a>	128 pb-1	February 2006
<a href="#">Exclusive <math>\chi_c</math> Production</a>	93 pb-1	September 2003

(\*) New Results Expected Soon

## Submitted

Analysis	Dataset	Last Update
<a href="#">Search for W/Z Hadronic Decays in Photon Events</a>	184 pb-1	Anril 2008

# High Energy Physics – Experiment

## Authors and titles for Apr 1994

[ total of 5 entries: 1-5 ]  
[ showing up to 25 entries per page: fewer | more ]

[1] [arXiv:hep-ex/9404001](#) [ps, pdf]

### Precise Measurement of the Left-Right Cross Section Asymmetry in $ZZ$ Boson Production by $e^+e^-$ Collisions

The SLD Collaboration

Comments: 15 pages, no figures

Journal-ref: Phys.Rev.Lett. 73 (1994) 25-29

Subjects: High Energy Physics – Experiment (hep-ex); High Energy Physics – Phenomenology (hep-ph)

[2] [arXiv:hep-ph/9404270](#) (cross-list from hep-ph) [ps, pdf, other]

### Measurement of the Spin-Dependent Structure Function $g_1(x)$ of the Proton the SMC

Comments: 11 pages, CERN-PPE/94-57

Journal-ref: Phys.Lett. B329 (1994) 399-406

Subjects: High Energy Physics – Phenomenology (hep-ph); High Energy Physics – Experiment (hep-ex)

[3] [arXiv:hep-ph/9404310](#) (cross-list from hep-ph) [ps, pdf, other]

### A Measurement of the Branching Fraction $\mathcal{B}(\tau^+ \rightarrow h^- \pi^0 \nu_\tau)$

The CLEO collaboration

Comments: 9 pages (in REVTEX format) Preprint CLNS94-1281, CLEO 94-11

Journal-ref: Phys.Rev.Lett. 72 (1994) 3762-3766

Subjects: High Energy Physics – Phenomenology (hep-ph); High Energy Physics – Experiment (hep-ex)





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## Flavour in the era of the LHC

Events in this category:



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(more options)



▼ 2007

December 2007

03 - 04 [Interplay of Collider and Flavour Physics](#)



March 2007

29 [Meeting of authors of B-mumu subsection in writeup](#)



26 - 28 [Flavour in the era of the LHC, final meeting \(VRVS for all sessions: virtual room Einstein\)](#)



▼ 2006

October 2006

09 - 11 [Flavour in the era of the LHC, 4th meeting](#)



May 2006

15 - 17 [Flavour in the era of the LHC, 3rd meeting](#)



February 2006

06 - 08 [Flavour in the era of the LHC, 2nd meeting](#)



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This site provides a fully electronic, Web-accessible archive for the proceedings of scientific conferences in High-Energy Physics and related fields. In its present stage, the site is maintained by Technical Information Services at SLAC as a free service to the scientific community. Our intention is to provide a home for electronically published conference proceedings. Through this, we hope to promote a permanent change in the way that scientific conference proceedings are published and accessed.

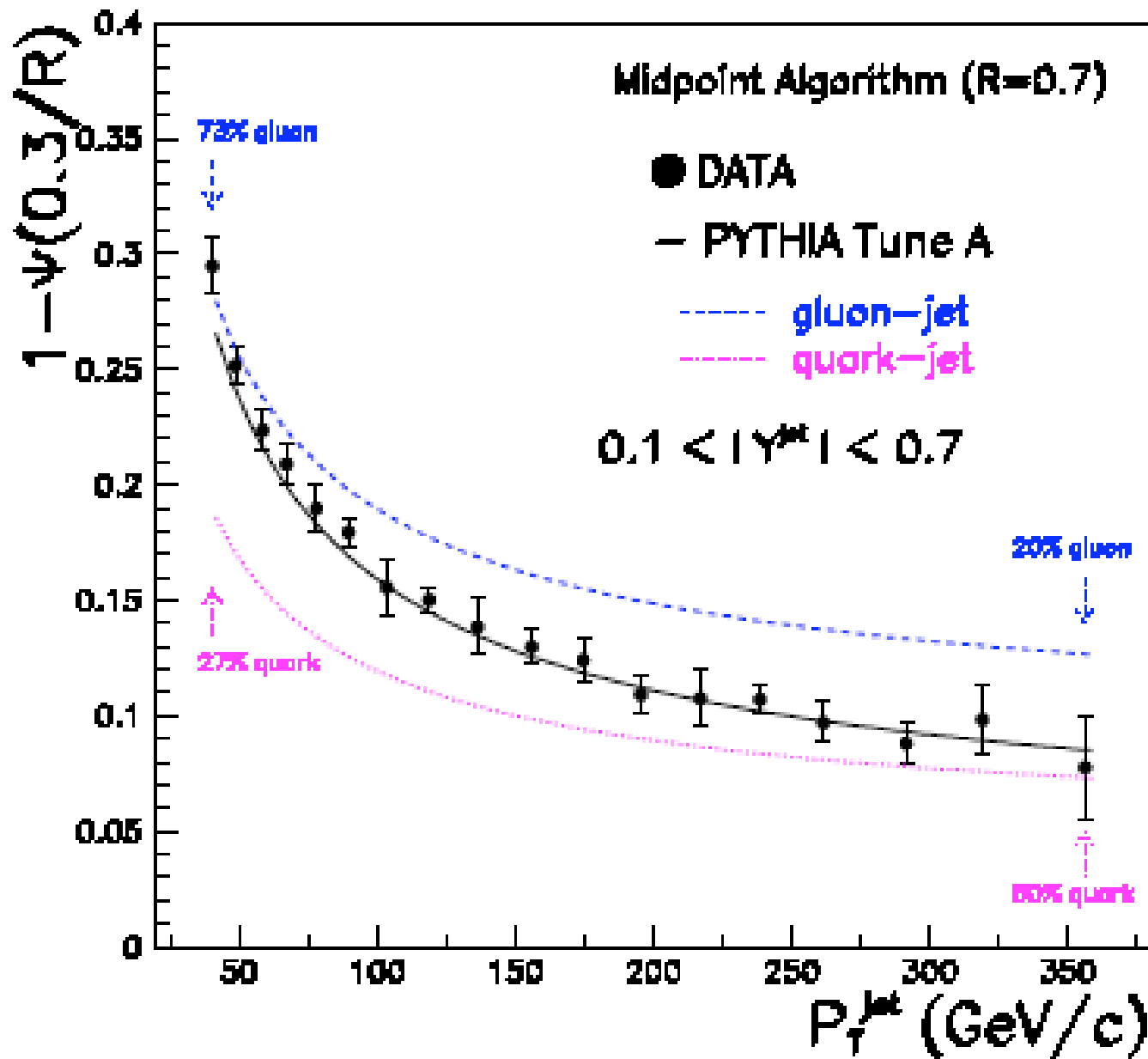
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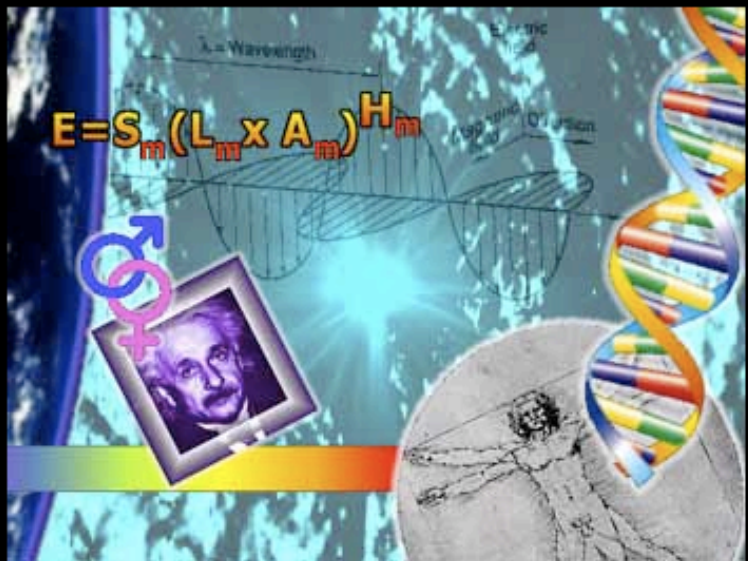
[eConf Committee at SLAC](#)



D. E. Acosta, et al., CDF Collaboration,  
 submitted to PRD May 2005.

# LIBERTY

# Joe



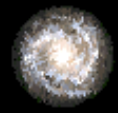
**THEORETICAL PHYSICIST**

**INVENTOR**

**HEALER**

**PERFORMER**

**EMAIL: [Info@LibertyJoe.com](mailto:Info@LibertyJoe.com)**



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Ideally, every 4-page PRL should be supported by a 50-page explication, authored by the analysis team, posted to hep-ex for permanent archiving.

The new journal JINST would benefit from more papers on subdetector performance and particle ID. Those groups that achieve exceptional results with physics impact should submit small-team papers.

Every Ph.D. thesis in particle physics should be posted to hep-ex.

It is useful to document a large particle physics experiment on a website, but it is also dangerous, unless this website is maintained meticulously.

Now we need to discuss two concepts that are matters of controversy in the world of journal publishing:

embargo      and      open access

In addition, an important exception is made for prior disclosure of research results in public news media or popular magazines with large circulations beyond the physics community. It is the expressed policy of the Society to encourage widespread and timely dissemination of the results of research in physics to the public at large, particularly in view of the fact that much research is funded by public agencies. Accordingly, newspaper, television, and radio accounts of research—even if prepared by the research team as news releases—are not to be counted as inhibitions against acceptance of papers for our journals. Accounts in widely read magazines such as *Time*, *Newsweek*, *Scientific American*, or *Physics Today* are similarly excepted. In such matters, authors

David Lazarus PRL editorial June, 1984



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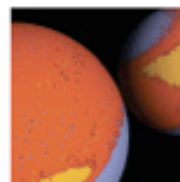
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*PLoS Computational Biology* makes connections between disparate areas of biology by featuring works that provide substantial new insight into living systems at all scales—including molecular science, neuroscience, physiology, and population biology—through the application of computational methods.

Current ISI impact factor: 4.9.



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- Maintain and stimulate a wide choice of high-quality journals
- An “author-friendly” copyright agreement
- High peer-review and editorial standards
- Competition among journals
- Get spiraling subscription costs under control



from a talk by Robert Aymar, Feb. 15, 2007

routes to open access:

declaration of principle (needs a deep-pockets sponsor)

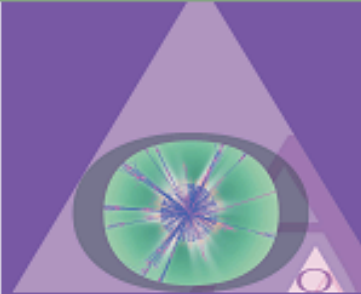
piecemeal open access (paper by paper, e.g. 'Free to Read')

top-down open access (needs an international consortium)

evolutionary open access (can it be reached asymptotically?)

# SCOAP<sup>3</sup> - Sponsoring Consortium for Open Access Publishing in Particle Physics

## Towards Open Access publishing in High Energy Physics



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### SCOAP<sup>3</sup>

A **consortium** facilitates Open Access publishing in High Energy Physics by re-directing subscription money. This answers **the request** of the High Energy Physics community.

**Today:** (funding bodies through) libraries buy journal subscriptions to support the peer-review service and allow their patrons to read articles.

**Tomorrow:** funding bodies and libraries contribute to the consortium, which pays centrally for the peer-review service. Articles are free to read for everyone.

**Read now:**

- [The Executive Summary of the Report of the SCOAP<sup>3</sup> Working Party](#)
- [The complete report](#)

» [To know more](#)

SCOAP3 model - gather financial resources with inter-institutional MOU's, then tender offers to journals to pay their full cost of publication.

## APS Journal Pricing Model

Online only print, supplement for print

APS and large libraries will archive, small library need have no such responsibility

Tiered pricing

Higher prices for major research institutions, increasing price differential for small institutions

It is a legitimate question whether we should let the Tier 1 and 2 prices go to zero over time.

Will Tier 4 and 5 librarians consider their contributions **charity** or **community responsibility** ?

Finally, we should discuss archiving of the wide range of information resources of high-energy physics collaborations.

This is timely, since all of the current major collaborations

CDF, DO, BaBar, Belle

will cease or pause operations in the next few years.

Can we make all private analysis documents public as a part of the scientific record ?

Can we make the data (or some appropriate reduction of it) public to future analysis ?

How could data be made available ?

for comparison at the physics object level:

for each event, reconstructed physics objects (4-vectors)  
with e, mu, photon jet, bjet, likelihoods

plus trigger efficiency for each event (given the most likely hypothesis) and an adequate Monte Carlo description of the detector smearing

for comparison at the model level.



Bruce Knuteson

# Quaero

A General Interface to HEP Data

[Help](#)

## Signal

Select the generator for your signal:

[Pythia \(documentation\)](#)  [Suspect \(documentation\)](#)  [MadEvent \(documentation\)](#)

**Datacard file:**  
Upload a file with the (generator specific) datacards for your signal.

Example datacards:

- Pythia: [Leptoquark](#)
- Suspect: [mSUGRA](#)
- Madevent: [Excited quark](#)

You can download one of these example datacards and then upload it using the field on the right. See the [help](#) page for more examples.

## Requestor

**Email address:**  
You will be notified when your results are ready.

**Short model description:**

**Target time:**  
Analysis time limit, in units of whole kiloseconds.

**Password:**  
Data from Aleph, L3, and CDF Run II are currently password protected, accessible only by collaboration members.

note added (Mar. 09): Knuteson was denied tenure at MIT and left High Energy Physics.

We are about to begin the LHC experiments, an era of 1000-member experimental collaborations, and also an era in which we expect to see the downfall of the Standard Model.

This era will test our ability to communicate with one another at all levels: a formal journal articles, in informal documents, and in discussion.

A discovery era is full of false leads and wrong suggestions. The LHC Collaborations have to be willing to release information that will bring attention to the problems and allow the community to solve them.

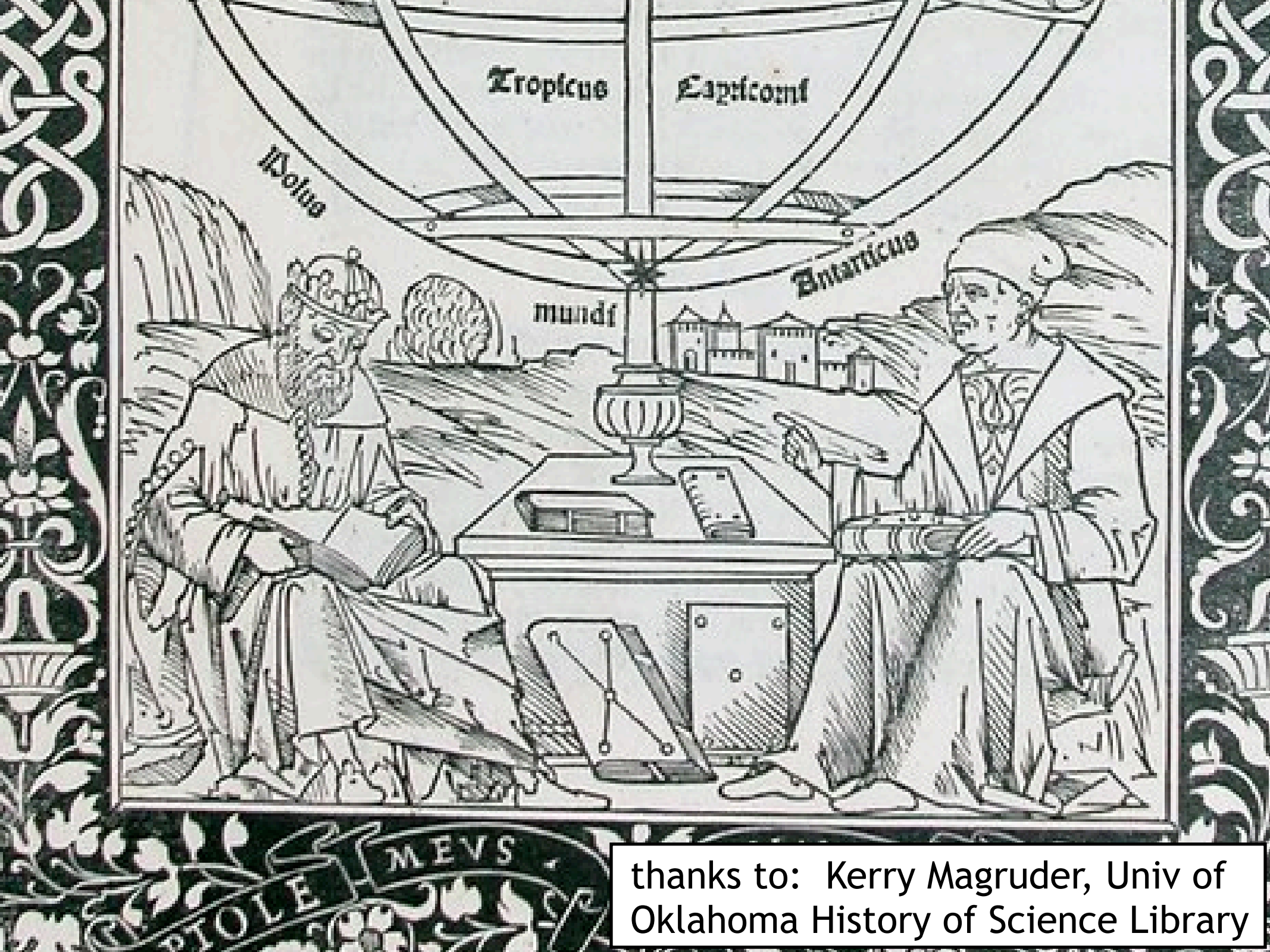


There are two goals that we should be looking out for:

1. To make the information about the experiments available to the young people who will need to think about it creatively.
2. To document the discoveries so that the evidence can be scrutinized in the short term and in the long future.



CDF control room: Ted Liu, Kirsten Tollefson, Veronica Sorin



thanks to: Kerry Magruder, Univ of Oklahoma History of Science Library

# 'Excess of Events at the LHC with Large Missing Energy and Large Heavy Flavor Content'

by the xx Collaboration (2009)

You will read it first on the arXiv, of course, but the world will read it first in Phys. Rev. Letters.