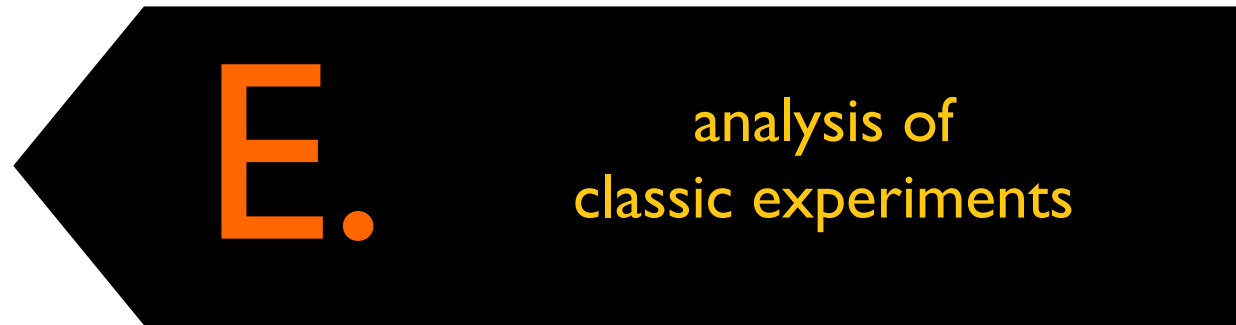


# Experimental particle. physics

**esipap**...  
European School of Instrumentation  
in Particle & Astroparticle Physics



# Let's read the papers

- Read the paper!
- Discuss the experimental techniques used to achieve the result:
  - ✓ What accelerator, is any? What detector setup?
  - ✓ How was the signal identified?
  - ✓ What were the major experimental challenges? How were they solved?
- Prepare a short presentation (3 slides max!) where the previous points are discussed
  - ✓ It can be a simple cut-and-paste of the most important plots and/or figures from the paper

## Experimental Determination of the Disintegration Curve of Mesotrons

BRUNO ROSSI AND NORRIS NERESON  
*Cornell University, Ithaca, New York*

(Received September 17, 1942)

The disintegration curve of mesotrons has been experimentally determined by investigating the delayed emission of disintegration electrons which takes place after the absorption of mesotrons by matter. Within the experimental errors, the disintegration curve is exponential and corresponds to a mean lifetime of  $2.3 \pm 0.2$  microseconds.

## Observation of Antiprotons\*

OWEN CHAMBERLAIN, EMILIO SEGRÈ, CLYDE WIEGAND,  
AND THOMAS YPSILANTIS

*Radiation Laboratory, Department of Physics, University of  
California, Berkeley, California*

(Received October 24, 1955)

## Experimental Observation of a Heavy Particle $J/\psi$

J. J. Aubert, U. Becker, P. J. Biggs, J. Burger, M. Chen, G. Everhart, P. Goldhagen,  
J. Leong, T. McCarriston, 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)

## 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. Rapidis, R. F. Schwitters, W. M. Tanenbaum,  
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and

G. S. Abrams, D. Briggs, W. Chinowsky, C. E. Friedberg, G. Goldhaber, R. J. Hollebeek,  
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)

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

C. Bacci, R. Balbini Celio, M. Berna-Rodini, G. Caton, R. Del Fabbro, M. Grilli, E. Iarocci,  
M. Locci, C. Mencuccini, G. P. Murtas, G. Penso, G. S. M. Spinetti,  
M. Spano, B. Stella, and V. Valente

*The Gamma-Gamma Group, Laboratori Nazionali di Frascati, Frascati, Italy*

and

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

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G. Barbarino, G. Barbiellini, C. Bemporad, R. Biancastelli, F. Cevenini, M. Celveti,  
F. Costantini, P. Lariccia, P. Parascandalo, E. Sassi, C. Spencer, L. Tortora,  
U. Troya, and S. Vitale

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(Received 18 November 1974)

# Observation of QCD jets

1982

## OBSERVATION OF VERY LARGE TRANSVERSE MOMENTUM JETS AT THE CERN $\bar{p}p$ COLLIDER

The UA2 Collaboration

M. BANNER <sup>f</sup>, Ph. BLOCH <sup>f</sup>, F. BONAUDI <sup>b</sup>, K. BORER <sup>a</sup>, M. BORGHINI <sup>b</sup>, J.-C. CHOLLET <sup>d</sup>,  
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Received 25 August 1982



# W boson discovery

1983

## EXPERIMENTAL OBSERVATION OF ISOLATED LARGE TRANSVERSE ENERGY ELECTRONS WITH ASSOCIATED MISSING ENERGY AT $\sqrt{s} = 540$ GeV

UA1 Collaboration, CERN, Geneva, Switzerland

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# Z boson discovery

1983

## EVIDENCE FOR $Z^0 \rightarrow e^+e^-$ AT THE CERN $\bar{p}p$ COLLIDER

The UA2 Collaboration

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Received 11 August 1983

# Z boson discovery

1983

## EXPERIMENTAL OBSERVATION OF LEPTON PAIRS OF INVARIANT MASS AROUND 95 GeV/c<sup>2</sup> AT THE CERN SPS COLLIDER

UA1 Collaboration, CERN, Geneva, Switzerland

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L. NAUMANN<sup>d</sup>, A. NORTON<sup>d</sup>, A. ORKIN-LECOURTOIS<sup>g</sup>, L. PAOLUZI<sup>i</sup>, F. PAUSS<sup>d</sup>,  
G. PIANO MORTARI<sup>i</sup>, E. PIETARINEN<sup>e</sup>, M. PIMIÄ<sup>e</sup>, A. PLACCI<sup>d</sup>, J.P. PORTE<sup>d</sup>,  
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M. RIJSSENBECK<sup>d</sup>, C. ROBERTS<sup>j</sup>, J. ROHLF<sup>d</sup>, P. ROSSI<sup>d</sup>, C. RUBBIA<sup>d</sup>, B. SADOULET<sup>d</sup>,  
G. SAJOT<sup>g</sup>, G. SALVI<sup>f</sup>, G. SALVINI<sup>i</sup>, J. SASS<sup>k</sup>, J. SAUDRAIX<sup>k</sup>, A. SAVOY-NAVARRO<sup>k</sup>,  
D. SCHINZEL<sup>d</sup>, W. SCOTT<sup>j</sup>, T.P. SHAH<sup>j</sup>, M. SPIRO<sup>k</sup>, J. STRAUSS<sup>l</sup>, J. STREETS<sup>c</sup>,  
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V. VUILLEMIN<sup>d</sup>, H.D. WAHL<sup>l</sup>, P. WATKINS<sup>c</sup>, J. WILSON<sup>c</sup>, C. WULZ<sup>l</sup>, G.Y. XIE<sup>d</sup>,  
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*Paris (Coll. de France)*<sup>g</sup> – *Riverside*<sup>h</sup> – *Rome*<sup>i</sup> – *Rutherford Appleton Lab.*<sup>j</sup> – *Saclay (CEN)*<sup>k</sup> – *Vienna*<sup>h</sup> Collaboration

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# Top quark discovery

1995

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PHYSICAL REVIEW LETTERS

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**Observation of Top Quark Production in  $\bar{p}p$  Collisions with the Collider Detector at Fermilab**  
(CDF Collaboration)

VOLUME 74, NUMBER 14

PHYSICAL REVIEW LETTERS

3 APRIL 1995

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**Observation of the Top Quark**  
(D0 Collaboration)