

Curriculum Vitae (Feb. 2024)

Charles C. H. Jui

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EDUCATION

- *Ph. D.* Physics, Stanford University. (February, 1992)
dissertation advisors: Dr. E. Barrie Hughes, Prof. Mason Yearian, Dr. Martin D. Cooper
- *M. S.* Physics, Stanford University (March, 1987)
- *B. Sc. summa cum laude* Physics, University of Ottawa (June, 1985)

AWARDS AND PRIZES

- University of Utah College of Science Professorship, 2013-2014
- University of Utah Honors Professorship, 2013-2014
- 1967 Memorial Scholarship for Graduate Studies,
Natural Science and Engineering Research Council of Canada.
awarded April 1985.
- Governor General's Medal
for graduating student with highest GPA,
University of Ottawa, June 1985.
- Second Place,
Canadian Association of Physicists Prize Examination 1984.

PROFESSIONAL EXPERIENCE

September, 1994 – 2000

Assistant Professor, Physics Department, University of Utah.

July, 2000 – July 2005

Associate Professor, Physics Department, University of Utah.

July, 2005 – present

Professor, Physics Department, University of Utah.

Teaching:

- 1994-1995 PHYSICS 671–graduate laboratory
- 1995-1998 PHYSICS 321H,322H,323H – Honors Introductory Physics
- 1997-1999 Professional Training Courses for local Science Teachers
- 1998-2000 PHYSICS 5450,5460 – Introduction to Quantum and Statistical Mechanics
- 2000-2003 PHYSICS 2210 – Physics for Scientists and Engineers I.
- Summer 2004 UGS 1430 – General Science for ACCESS women in science and engineering program.
- Fall 2004 PHYSICS 4410 – Classical Physics I: Classical Dynamics
- Spring 2005 PHYSICS 4420 – Classical Physics II: Electrodynamics
- Summer 2005 UGS 1430 – General Science for ACCESS
- Fall 2005 PHYSICS 4410 – Classical Physics I: Classical Dynamics
- Spring 2006 PHYSICS 4420 – Classical Physics II: Electrodynamics
- Summer 2006 UGS 1430 – General Science for ACCESS
- Fall 2006 PHYSICS 4410 – Classical Physics I: Classical Dynamics
- Spring 2007 PHYSICS 4420 – Classical Physics II: Electrodynamics

- Summer 2007 UGS 1430 – General Science for ACCESS
- Fall 2007 PHYSICS/HONORS 3375 – Women in Physics and Their Scientific Contributions
- Spring 2008 PHYSICS 3620/6620 – Electronics II
- Summer 2008 UGS 1430 – General Science for ACCESS
- Fall 2008 PHYSICS 2220 – Physics for Scientists and Engineers II.
- Spring 2009 PHYSICS 3620/6620 – Electronics II
- Spring 2009 PHYSICS 5110 – Intro. to Nuclear and Particle Physics
- Summer 2009 UGS 1430 – General Science for ACCESS
- Summer 2010 UGS 1430 – General Science for ACCESS
- Spring 2011 PHYSICS 2020 – General Physics II. sections 1 and 12
- Summer 2011 UGS 1430 – General Science for ACCESS
- Spring 2012 PHYSICS 2020 – General Physics II. sections 1 and 12
- Summer 2012 UGS 1430 – General Science for ACCESS
- Spring 2013 PHYSICS 2020 – General Physics II. sections 1 and 12
- Summer 2013 UGS 1430 – General Science for ACCESS
- Spring 2014 HONORS/PHYSICS 3030 – Discovering Complex Systems
- Summer 2014 UGS 1430 – General Science for ACCESS
- Spring 2015 PHYSICS 2210 – Physics for Scientists and Engineers I. sections 1 and 06
- Fall 2015 PHYSICS 2210 – Physics for Scientists and Engineers I. sections 1 and 10
- Spring 2016 PHYSICS 3620/6620– Electronics II.
- Fall 2016 PHYSICS 3610/6610 – Electronics I.

- Spring 2017 PHYSICS 3375 – Women in Physics and Their Scientific Contributions
- Spring 2018 PHYSICS 3375 – Women in Physics and Their Scientific Contributions
- Spring 2019 PHYSICS 3620/6620 Electronics II – Automated Data Acquisition
- Fall 2019 PHYSICS 4410 – Classical Physics I: Classical Dynamics
- Spring 2020 PHYSICS 4420 – Classical Physics II: Electrodynamics
- Fall 2020 PHYSICS 4410 – Classical Physics I: Classical Dynamics
- Spring 2021 PHYSICS 4420 – Classical Physics II: Electrodynamics
- Fall 2021 PHYSICS 7110 – Electrodynamics I
- Spring 2022 PHYSICS 3620/6620 Data Acquisition and Scientific Instrumentation
- Fall 2022 PHYSICS 7110 – Electrodynamics I
- Spring 2023 PHYSICS 4420 – Classical Physics II: Electrodynamics
- Fall 2023 PHYSICS 7110 – Electrodynamics I
- Spring 2024 PHYSICS 3620/6620 Data Acquisition and Scientific Instrumentation

Ph.D. Students Supervised:

Tareq Abu-Zayyad, Ph.D. 2000

Benjamin Stokes 1998-2006

Rasha Abbasi 2001-2007

Adam Blake 2004-2010

Douglas Rodriguez 2004-2011

Monica Allen 2011-2013

Zachary Zundel 2008-2016

Elwin Basset 2016-2018

Mathew Potts 2018-2022

Ricardo Gonzalez 2020-2021

Anna Christopherson 2022-present

Robert D'Avignon 2022-present

Postdocs Supervised:

Dr. Petra Hüntemeyer 2002-2006

Dr. Tareq Abu-Zayyad 2004-2008

Tom Sonley 2009-2009

Jihyun Kim 2020-present

Research:

- full-time member of the High Resolution Fly's Eye Experiment (HiRes—a collaboration of University of Utah, Columbia University, University of Adelaide, Rutgers University, University of Montana, University of Tokyo)
- Project Leader of the HiRes-1 site (in data-taking mode since spring, 1997) operations and data analysis.
- Co-Principal Investigator of 1998-2002.
- Collaboration with University of Chicago on the Broad Lateral Non-imaging Cerenkov Array (BLANCA) to study the composition of cosmic rays between $10^{15} - 5 \times 10^{16}$ eV.
- Participant in the Fluorescence in Air from Showers (FLASH) experiment
- Acting leader/PI of Utah HiRes group (2002-2005)
- co-PI of the Telescope Array Experiment, University of Utah (host institution) 2006 - present
- Member of the Executive Committee of the Telescope Array Collaboration since the inception of TA in 2005.
- Co-Spokesperson (One of two) of the Telescope Array Collaboration in Dec 2017 - Dec 2022.
- Became PI of cosmic ray group NSF grants: Fall 2019.

Other Activities:

- Project Leader for the education outreach project *Astrophysics Science Project Integrating Research and Education* (ASPIRE) 1997-2023
- Member of the Local Organizing Committee for the 26th International Cosmic Ray Conference, Salt Lake City, August 1999.

March, 1992 – September, 1994

Research Associate, Physics Department, University of California, Riverside.

September, 1985 – February, 1992

Graduate student, Department of Physics, Stanford University.

May, 1985 – August, 1985

Summer Research Assistant, Division of Micro-structural Sciences, National Research Council of Canada (NRCC) under supervision of Dr. Barry Wood and Dr. Marie D'Iorio.

May, 1984 – August, 1984

Summer Research Assistant, Division of Chemistry (Solid State Chemistry), National Research Council of Canada (NRCC) under supervision of Dr. Jeff Dahn and Dr. Ross McKinnon.

Funding History

NSF PHY-9321949 \$4,145,833 (Co-PI since 1998) "Proposal to Operate and Analyze Data From the Fly's Eye and High Resolution Fly's Eye Detectors." May 1, 1995 - April 30, 2001

NSF PHY-9322298 \$4,999,500 (Co-PI since 1998) "Costruction of High Resolution Fly's Eye (HiRes) Detector Stage I." June 28, 1994 - June 30, 2003

NSF PHY-9974537 \$4,791,679 (Co-PI) "Proposal to Operate and Analyze Data from the High Resolution Fly's Eye Detector" Jan 1, 2000-Dec 31, 2002

NSF PHY-0140688 \$2,525,098 (PI) "Proposal to Operate and Analyze Data from the High Resolution Fly's Eye Detector (Part III)" Apr 1, 2002 - Apr 30, 2004

NSF PHY-0307098 \$1,505,811 (PI) "Proposal to Operate and Analyze Data from the High Resolution Fly's Eye Detector (Part IV)" Apr 1, 2004 - Apr 30, 2005

NSF PHY-0400053 (PI) \$119,000 "FLASH - Fluorescence in Air Showers" Apr 1, 2004 - Apr 30, 2007

NSF PHY-0703893 (Co-PI) \$1,215,025 "Operation of the University of Utah Cosmic Ray Group (Including the High Resolution Fly's Eye Experiment and the Telescope Array Project)" Apr 1, 2007 - Jan 31, 2008

NSF PHY-0601915 (Co-PI) \$2,135,366 "The Telescope Array and its Low Energy Extention" Apr 1, 2006 - Jun 30, 2010

NSF PHY-0758342 (Co-PI) \$1,718,472 "Telescope Array Operations and Data Analysis by the Unviersity of Utah Cosmic Ray Group" Feb 1, 2008 - Jan 31, 2011

NSF PHY-0848320 (Co-PI) \$2,271,046 "Baseline Support of the University of Utah Cosmic Ray Physics Group (for the Telescope Array group only: no longer includes the Pierre Auger group)" Oct 1, 2008 - Sep 30, 2011

NSF PHY-10021194 (co-PI), \$3,124,772 "Baseline Support Of The University

Of Utah Cosmic Ray Physics Group Including Analysis Of The Telescope Array". Sep 1, 2011 - Aug 31, 2014

NSF Grant PHY-1069286,(co-PI), \$1,707,240 "Telescope Array Operations And Data Analysis By The University Of Utah Cosmic Ray Group". Sep. 15, 2011 - Aug 31, 2014

NSF Grant PHY-1404495, (co-PI), \$1,853,364 "Baseline Support of the University of Utah Cosmic Ray Physics Group Including Analysis of the Telescope Array". Sep. 1, 2014 - Aug. 30, 2017 Extended to Feb. 28, 2018 and to new total amount of \$2,231,294

NSF Grant PHY-1404502, (co-PI), \$2,104,641 "Telescope Array Operations and Data Analysis by the University of Utah Cosmic Ray Group". Sep. 1, 2014 - Aug. 30, 2017

NSF Grant PHY-1607727, (co-PI) \$1,775,000 "Telescope Array TAx4 Upgrade Deployment Proposal", Aug. 15, 2017 - Jul. 31, 2019

NSF Grant PHY-1712517, (PI) \$2,424,080 "Operation of the Telescope Array, TALE, and the TAx4 Expansion", Aug. 1, 2017 - Jul. 31, 2020.

NSF Grant PHY-1806797 , (PI) \$2,172,872 "Baseline Support of the University of Utah Cosmic Ray Physics Group Including Analysis of Telescope Array, TALE, and TAx4 Data", Jul. 15, 2018 - Jun 30, 2021 extended to Jun. 30, 2022 New total \$2,597,872

NSF Grant PHY-2012934, (PI) \$865,000 "Operation of the Telescope Array, TALE, and the TAx4 Expansion by the University of Utah", Sep.1 2020 - Aug. 31 2021

NSF Grant PHY- 2112904, (PI) \$865,000. "Operation of the Telescope Array Observatory", Jun 30, 2021 - Jul. 1, 2022

NSF Grant PHY-2209584, (PI) \$310,000. "Analysis of Data from the Telescope Array Observatory" Oct. 1, 2022 - Sep. 30, 2023

NSF Grant PHY-2209583, (PI) \$1,450,000. "Operation of the Telescope Array Observatory" Sep. 1, 2022 - Aug. 31, 2025

NSF Grant PHY-2310163, (PI) \$310,000. "Analysis of Data from the Telescope Array Observatory" Sep. 1, 2023 - Jul. 31, 2025

Proposals Pending

NSF Proposal PHY-2411958, (PI) \$3,560,394 (Amount requested). "Support of University of Utah Cosmic Ray Physics Group for Extending Operations of the Telescope Array Observatory and Analysis of its Data" Jul. 1, 2024 - Jun. 30, 2027

NSF Proposal PHY-2411966, (co-PI) \$499,904 (Amount requested). "Analysis of Data from the Telescope Array Observatory" Sep. 1, 2023 - Jul. 31, 2025

PUBLICATIONS

1. C.C.H. Jui, W.R. McKinnon, J.R. Dahn, “*Chemical-potential Measurements and Phase Diagrams of a Pseudoternery solid: $Li_xCu_yMo_6S_8$* ”, Phys. Rev. Lett. **54**, 1432 (1985).
2. W.R. McKinnon, J.R. Dahn, C.C.H. Jui, “ *$Li_xCu_yMo_6S_8$: A Pseudoternery Intercalation Compound*”, J. Phys. **C18**, 4443 (1985).
3. J.R. Dahn, W.R. McKinnon, C.C.H. Jui, “*Interpreting compounds with two intercalated species as Pseudoternery systems*”, Synth. Met. **11**, 117 (1985).
4. W.R. McKinnon, J.R. Dahn, C.C.H. Jui, “*Determining Ternery Phase Diagrams with Electrochemical cells and in-situ X-ray Diffraction*”, Acta Metall. **34**, 1879 (1986).
5. V. Armijo, K. Black, R.D. Bolton, S. Carius, M.D. Cooper, C. Espinoza, G. Hart, G.E. Hogan, G. Ludwig, R.E. Mischke, L. Piilonen, S. Stanislaus, J. Sandoval, D.A. Whitehouse, C. Wilkinson, C.C.H. Jui, “*A Fast MWPC with Cathode Strips and Utilizing CF_4 -isobutane*”, Nucl. Inst. and Meth. **A303**, 298 (1991).
6. S. Stanislaus, V. Armijo, J.K. Black, R.D. Bolton, S. Carius, M.D. Cooper, C. Espinoza, G. Hart, G.E. Hogan, A. Gonzales, R.E. Mischke, L. Piilonen, J. Sandoval, S. Schilling, J. Sena, G. Suazo, J.J.Szymanski, D.A. Whitehouse, C.A. Wilkinson, D. Koetke, R. Manweiler, R. Fisk, C.C.H. Jui, “*Results from beam tests of MEGA’s low-mass, high-rate MWPCs*”, Nucl. Inst. and Meth. **A323**, 198 (1992).
7. P.D. Acton *et al.*, (OPAL Collaboration) “*Inclusive Neutral Vector Meson Production in Hadronic Z^0 Decays.*”, Z. Phys. **C56**, 521-535 (1992).
8. P.D. Acton *et al.*, (OPAL Collaboration) “*A Search for Doubly-Charged Higgs Production in Z^0 Decays*”, Phys. Lett. **B295**, 347-356 (1992).
9. P.D. Acton *et al.*, (OPAL Collaboration) “*Evidence for the Existence of the b-flavour Meson B_S^0 in Z^0 Decays*”, Phys. Lett. **B295**, 357-370 (1992).

10. P.D. Acton *et al.*, (OPAL Collaboration) “A Study of $K_S^0 K_S^0$ Bose-Einstein Correlations in Hadronic Z^0 Decays”, Phys. Lett. **298**, 456-468 (1993).
11. P.D. Acton *et al.*, (OPAL Collaboration) “A Measurement of $K^{*\pm}(892)$ Production in Hadronic Z^0 Decays”, Phys. Lett. **B305**, 407-414 (1993).
12. P.D. Acton *et al.*, (OPAL Collaboration) “A Study of the Electric Charge Distributions of Quark and Gluon Jets in Hadronic Z^0 Decays”, Phys. Lett. **B302**, 523-532 (1993).
13. P.D. Acton *et al.*, (OPAL Collaboration) “QCD Coherence Studies Using Two Particle Azimuthal Correlations”, Z. Phys. **C58**, 207-217 (1993).
14. P.D. Acton *et al.*, (OPAL Collaboration) “Precision Measurements of the Neutral Current from Hadron and Lepton Production at LEP”, Z. Phys. **C58**, 219-237 (1993).
15. P.D. Acton *et al.*, (OPAL Collaboration) “Evidence for Chain-Like Production of Strange Baryon Pairs in Jets”, Phys. Lett. **B305**, 415-427 (1993).
16. P.D. Acton *et al.*, (OPAL Collaboration) “Studies of the Strong and Electroweak Interactions Using Final State Photon Emission in Hadronic Z^0 Decays”, Z. Phys. **C58**, 405-418 (1993).
17. P.D. Acton *et al.*, (OPAL Collaboration) “A Study of the Differences Between Quark and Gluon Jets Using Vertex Tagging of Quark Jets”, Z. Phys. **C58**, 387-403 (1993).
18. P.D. Acton *et al.*, (OPAL Collaboration) “Measurement of the B^0 and B^+ Lifetimes”, Phys. Lett. **B307**, 247-261 (1993).
19. LEP Energy Group, and the Aleph, Delphi, L3 and OPAL Collaborations, “Measurement of the Mass of the Z Boson and the Energy Calibration of LEP”, Phys. Lett. **B307**, 187-193 (1993).
20. P.D. Acton *et al.*, (OPAL Collaboration) “Measurement of $\Gamma(Z^0 \rightarrow b\bar{b})/\Gamma(Z^0 \rightarrow \text{hadrons})$ Using Leptons”, Z. Phys. **C58** 523-539 (1993).

21. P.D. Acton *et al.*, (OPAL Collaboration) “*Measurement of the Tau Lifetime*”, Z. Phys. **C58** 523-539 (1993).
22. P.D. Acton *et al.*, (OPAL Collaboration) “*A Determination of $\alpha_S(M_{Z^0})$ at LEP Using Resummed QCD Calculations*”, Z. Phys. **C59** 1-19 (1993).
23. P.D. Acton *et al.*, (OPAL Collaboration) “*Search for Anomalous Production of High Mass Photon pairs in e^+e^- Collisions*”, Phys. Lett. **B311** 391-407 (1993).
24. P.D. Acton *et al.*, (OPAL Collaboration) “*Measurement of the B_S^0 Lifetime*”, Phys. Lett. **B312** 501-510 (1993).
25. P.D. Acton *et al.*, (OPAL Collaboration) “*The Forward Backward Asymmetry of $e^+e^- \rightarrow b\bar{b}$ and $e^+e^- \rightarrow c\bar{c}$ Using Leptons in hadronic Z^0 Decays*”, Z. Phys. **C60** 19-35 (1993).
26. P.D. Acton *et al.*, (OPAL Collaboration) “*A Measurement of $\Gamma(Z^0 \rightarrow b\bar{b})/\Gamma(Z^0 \rightarrow \text{hadrons})$ Using an Impact Parameter Technique*”, Z. Phys. **C60** 579-592 (1993).
27. P.D. Acton *et al.*, (OPAL Collaboration) “*Search for Massive, Unstable Photinos that Violate R Parity*”, CERN-PPE/93-91 (4 June 1993), Phys. Lett. **B313** 333-340 (1993).
28. P.D. Acton *et al.*, (OPAL Collaboration) “*Measurement of the Average b Hadron Lifetime in Z^0 Decays*”, Z. Phys. **C60** 217-228 (1993).
29. R. Akers *et al.*, (OPAL Collaboration) “*Measurements of $B_0 - \bar{B}_0$ Mixing, $\Gamma(Z^0 \rightarrow b\bar{b})$ and Semileptonic Branching Ratios for b -flavoured Hadrons in Hadronic Z_0 Decays*”, Z. Phys. **C60** 199-216 (1993).
30. R. Akers *et al.*, (OPAL Collaboration) “*A Test of the Flavour Independence of the Strong Interaction for Five Flavours*”, Z. Phys. **C60** 397-420 (1993).
31. R. Akers *et al.*, (OPAL Collaboration) “*A Measurement of the Average Lifetime of b -flavoured Baryons*”, Phys. Lett. **B316** 435-447 (1993).

32. R. Akers *et al.*, (OPAL Collaboration) “*A Measurement of the Forward-Backward Asymmetry of $e^+e^- \rightarrow c\bar{c}$ and $e^+e^- \rightarrow b\bar{b}$ at Centre of Mass Energies on and near the Z^0 Peak Using $D^{*\pm}$ Mesons*”, Z. Phys. **C60** 601-612 (1993).
33. R. Akers *et al.*, (OPAL Collaboration) “*A Study of Muon Pair Production and Evidence for Tau Pair Production in Photon-Photon Collisions at LEP*”, Z. Phys. **C60** 593-600 (1993).
34. R. Akers *et al.*, (OPAL Collaboration) “*Improved Measurements of the Neutral Current from Hadron and Lepton Production at LEP*”, Z. Phys. **C61** 19-34 (1994).
35. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Photon Structure Function F_2^γ in the Reaction $e^+e^- \rightarrow e^+e^- + \text{hadrons}$ at LEP*”, Z. Phys. **C61** 199-208 (1994).
36. R. Akers *et al.*, (OPAL Collaboration) “*Studies of Charged Particle Multiplicity in b Quark Events*”, Z. Phys. **C61** 209-221 (1994).
37. R. Akers *et al.*, (OPAL Collaboration) “*Multiplicity and Transverse Momentum Correlations in Multihadronic Final States in e^+e^- Interactions at $\sqrt{s} = 91.2$ GeV*”, Phys. Lett. **B320** 417-430 (1994).
38. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of $\Gamma(Z^0 \rightarrow b\bar{b})/\Gamma(Z^0 \rightarrow \text{hadrons})$ Using Impact Parameters and Leptons*”, Z. Phys. **C61** 357-369 (1994).
39. R. Akers *et al.*, (OPAL Collaboration) “*Search for the Minimal Standard Model Higgs Boson*”, Phys. Lett. **B327** 397-410 (1994).
40. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Time Dependence of $B_d^0 - \overline{B}_d^0$ Mixing Using a Jet Charge Technique*”, Phys. Lett. **B327** 411-424 (1994).
41. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the $\tau^- \rightarrow h^- \pi^0 \nu_\tau$ and $\tau^- \rightarrow h^- (\geq 2\pi^0) \nu_\tau$ Branching Ratios*”, Phys. Lett. **B328** 207-222 (1994).
42. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Production Rates of Charged Hadrons in e^+e^- Collisions at the Z^0* ”, Z. Phys. **C63** 181-195 (1994).

43. R. Akers *et al.*, (OPAL Collaboration) “*QCD Studies Using a Cone-based Jet Finding Algorithm for e^+e^- Collisions at LEP*”, Z. Phys. **C63** 197-211 (1994).
44. R. Akers *et al.*, (OPAL Collaboration) “*A Study of Mean Sub-jet Multiplicities in Two- and Three-Jet Hadronic Z^0 Decays*”, Z. Phys. **C63** 363-375 (1994).
45. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Time Dependence of $B_d^0 \rightarrow \bar{B}_d^0$ Mixing Leptons and $D^{*\pm}$ Mesons*”, Phys. Lett. **B336** 585-598 (1994).
46. R. Akers *et al.*, (OPAL Collaboration) “*Observation of Exclusive Decays of B Mesons at LEP*”, Phys. Lett. **B337** 196-206 (1994).
47. R. Akers *et al.*, (OPAL Collaboration) “*Search for a Scalar Top Quark Using the OPAL Detector*”, Phys. Lett. **B337** 207-218 (1994).
48. R. Akers *et al.*, (OPAL Collaboration) “*Search for Rare Hadronic B Decays*”, Phys. Lett. **B337** 393-404 (1994).
49. R. Akers *et al.*, (OPAL Collaboration) “*Search for Neutral Higgs Bosons in the Minimal Supersymmetric Extension of the Standard Model*”, Z. Phys. **C64** 1-13 (1994).
50. R. Akers *et al.*, (OPAL Collaboration) “*Updated measurement of the tau lifetime.*”, Phys. Lett. **B338** 497-506 (1994).
51. R. Akers *et al.*, (OPAL Collaboration) “*Measurements of the Inclusive Branching Ratios of Tau Leptons to K_s^0 and Charged K^* (892)*”, Phys. Lett. **B339** 278-292 (1995).
52. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Tau Lepton Polarization and its Forward-Backward Asymmetry from Z^0 Decays*”, Z. Phys. **C65** 1-16 (1995).
53. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of $\Gamma(Z^0 \rightarrow b\bar{b})/\Gamma(Z^0 \rightarrow \text{hadrons})$ using a Double Tagging Method*”, Z. Phys. **C65** 17-30 (1995).
54. R. Akers *et al.*, (OPAL Collaboration) “*Determination of the Event Shape Distributions and $\alpha_s(b)$ from $Z^0 \rightarrow b\bar{b}$ Events at LEP*”, Z. Phys. **C65** 31-45 (1995).

55. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of Single Photon Production in the e^+e^- Collisions near the Z^0 Resonance*”, Z. Phys. **C65** 47-65 (1995).
56. R. Akers *et al.*, (OPAL Collaboration) “*Determination of an Upper Limit for the Mass of the Tau Neutrino at LEP*”, Z. Phys. **C65** 183-188 (1995).
57. R. Akers *et al.*, (OPAL Collaboration) “*A measurement of the QCD color factor ratios C_A/C_F and T_F/C_F from angular correlations in four jet events*”, Z. Phys. **C65** 367-377 (1995).
58. R. Akers *et al.*, (OPAL Collaboration) “*Observations of $\pi - B$ charge-flavor correlations and resonant $B\pi$ and BK production*”, Z. Phys. **C66** 19-29 (1995).
59. R. Akers *et al.*, (OPAL Collaboration) “*A Test of CP-Invariance in $Z^0 \rightarrow \tau^+\tau^-$ Using Optimal Observables*”, Z. Phys. **C66** 31-41 (1995).
60. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Leptonic Branching Ratios of the tau lepton*”, Z. Phys. **C66** 543-554 (1995).
61. R. Akers *et al.*, (OPAL Collaboration) “*A Study of B Meson Oscillations Using Dilepton Events*”, Z. Phys. **C66** 555-565 (1995).
62. R. Akers *et al.*, (OPAL Collaboration) “*Comparisons of the Properties of Final State Photons in Hadronic Z^0 Decays with Predictions from Matrix Element Calculations*”, Z. Phys. **C67** 15-44 (1995).
63. R. Akers *et al.*, (OPAL Collaboration) “*A Measurement of the Production of D^{*+-} Mesons on the Z^0 Resonance*”, Z. Phys. **C67** 27-44 (1995).
64. R. Akers *et al.*, (OPAL Collaboration) “*Measurement of the Hadronic Decay Current in $\tau^- \rightarrow \pi^- \pi^- \pi^+ \nu_{\tau}$* ”, Z. Phys. **C67** 45-55 (1995).
65. R. Akers *et al.*, (OPAL Collaboration) “*A Study of Charm Meson Production in Semileptonic B Decays*”, Z. Phys. **C67** 57-68 (1995).
66. R. Akers *et al.*, (OPAL Collaboration) “*An Improved Measurement of the B_S^0 Lifetime*”, Phys. Lett. **B350** 273-282 (1995).

67. R. Akers *et al.*, (OPAL Collaboration) “*Search for Heavy Charged Particles and for Particles with Anomalous Charge in e^+e^- Collisions at LEP*”, Z. Phys. **C67** 203-211 (1995).
68. R. Akers *et al.*, (OPAL Collaboration) “*The production of neutral kaons in Z^0 decays and their Bose-Einstein correlations*”, Z. Phys. **C67** 203-211 (1995).
69. R. Akers *et al.*, (OPAL Collaboration) “*Multiplicity in $Z^0 \rightarrow b\bar{b}$ Events*”, Z. Phys. **C67** 365-378 (1995).
70. Shigeru Yoshida, Hong-yue Dai, Charles C.H. Jui, Paul Sommers. *Extremely high-energy neutrinos and their detection* Astrophys. J. 479 (1997) 547-559.
71. M.D. Cooper *et al.*, (MEGA Collaboration) Construction and performance of MEGA’s low-mass, high-rate cylindrical MWPCs. Nucl. Instrum. Methods A417 (1998) 24-49.
72. L. R. Wiencke, T. Abu-Zayyad *et al.*, (HiRes Collaboration) *Radio Controlled Xenon Flashers for Atmospheric Monitoring at the HiRes Cosmic Ray Observatory*. Nucl. Inst. and Meth., A428 (1999) 593-607.
73. GEOMETRICAL RECONSTRUCTION WITH THE HIGH RESOLUTION FLY’S EYE PROTOTYPE COSMIC RAY DETECTOR. C.R. Wilkinson *et al.*, (HiRes Collaboration) Astropart. Phys. 12 (1999) 121-134
74. NEW LIMIT FOR THE FAMILY NUMBER NONCONSERVING DECAY $\mu^+ \rightarrow e^+ \gamma$. M.L. Brooks (HiRes Collaboration) LA-UR-99-2268, May 1999. 4pp. Phys. Rev. Lett. 83 (1999) 1521-1524
75. THE PROTOTYPE HIGH-RESOLUTION FLY’S EYE COSMIC RAY DETECTOR. T. Abu-Zayyad *et al.*, (HiRes Collaboration) Nucl. Inst. and Meth. A450 (2000) 253-269
76. FIRST RESULTS FROM THE HIGH RESOLUTION FLY’S EYE EXPERIMENT. J.N. Matthews *et al.*, (HiRes Collaboration) Nucl. Phys. Proc. Suppl. 87 (2000) 411-413

77. A multi-component measurement of the cosmic ray composition between 10^{17} eV and 10^{18} eV. T. Abu-Zayyad *et al.*, (HiRes-CASA-MIA Collaboration) Phys. Rev. Lett., 84, 4276 (2000).
78. A measurement of the cosmic ray spectrum and composition at the knee J.W. Fowler, L.F. Fortson, C.C.H. Jui, D.B. Kieda, R.A. Ong, C.L. Pryke, P. Sommers, Astroparticle Phys., 15, (2001) 49.
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142. R.U.Abbasi et al. (TA Collaboration), The energy spectrum of cosmic rays measured by the Telescope Array using 10 years of fluorescence detector data. *Astropart. Phys.* 151 102864 September 2023
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Manuscripts in Preparation

1. R.U.Abbasi et al. (TA Collaboration), Evidence for Declination Dependence of Ultrahigh Energy Cosmic Ray Spectrum in the Northern Hemisphere
2. R.U.Abbasi et al. (TA Collaboration), Ultra-high-energy cosmic-ray mass composition with the 12-year data from the Telescope Array Surface Detector
3. R.U.Abbasi et al. (TA Collaboration), Indications of a Cosmic Ray Source in the Perseus-Pisces Supercluster
4. R.U.Abbasi et al. (TA Collaboration), Night Sky Monitoring for Fluorescence Technique Cosmic Ray Observation in Telescope Array Experiment

TALKS

- Jan. 16, 1996: Plenary (invited) talk at the winter meeting of the American Association of Physics Teachers in Reno, Nevada. Title: "The Fly's Eye Experiments".
- Apr. 16, 1996: Colloquium (invited) at the Physics Department, Utah State University, Logan, UT Title: "Cosmic Violence in the near-by Universe"
- Sept. 25, 1996: Invited talk at the International Symposium on Extremely High Energy Cosmic Rays: Astrophysics and Future Observatories. Institute for Cosmic Ray Research, University of Tokyo. Title: "Preliminary Results from HiRes-Mia Coincidence Observations"
- Sep. 18, 1997 Presentation to the Salt Lake Astronomical Society, Hansen Planetarium Title: "The Fly's Eye Experiments"
- Jan 28, 1998: Invited talk at the Aspen Winter Particle Physics Conference Title: "Progress of the High Resolution Fly's Eye"
- May 15, 1998: Special presentation at CONDUIT (Science Fiction and Fantasy Convention). Salt Lake City. Invited again for March, 1999.
- May 12, 1999: special presentation at CONDUIT (Science Fiction and Fantasy Convention). Salt Lake City. Invited again for March, 1999.
- August, 1999: To give invited talk at THE INTERNATIONAL CONFERENCE ON ASTROPHYSICS AT HIGH T AND LOW TAU (IC-AHTLT), Sedona, Arizona.
- Invited talk: HiRes Highlight Talk at the 26th International Cosmic Ray Conference, Salt Lake City, August, 1999
- University of Utah Science at Breakfast Presentation, March, 2000
- Invited talk: APS Astrophysics Section, General Meeting at Long Beach, CA, May 2000
- Colloquium, Ohio State University Dept. of Physics, Nov., 2000

- Colloquium, University of California, Riverside, Physics Dept. Jan., 2001
- Invited talk at the Snowmass 2001 Conference July, 2001
- Seminar to the ARDA group, Stanford Linear Accelerator Center, Jan. 2002
- Seminar at the Los Alamos Neutron Science Center (LANSCE), Mar. 2002.
- Colloquium at University of Kansas Department of Physics, Feb. 2003
- Invited HiRes speaker, The 5th New Worlds in Astroparticle Physics Conference, Faro, Portugal, Jan.8-10, 2005.
- Invited presentation on recent HiRes results at the "Physics at the End of the Galactic Cosmic Ray Spectrum" conference Aspen, CO USA, April 2005
- Contributed presentation on Telescope Array Low Energy Extension (TA/TALE) Instrumentation at the 29th International Cosmic Ray Conference, Pune, India August, 2005.
- Invited HiRes speaker, From Colliders to Cosmic Rays (C2CR) Conference, Prague, Czech Republic, September, 2005.
- Invited HiRes speaker, The Energy Budget of the Extremely High Energy Universe Workshop, ICRR, Tokyo University, Kashiwa, Japan, Feb. 2006.
- HiRes speaker, The CALOR2006 Conference, Chicago, June 2006.
- Contributed talk at the ICHEP06, Moscow, July 2006.
- Contributed HiRes talk, European Cosmic Ray Conference 2006, Lisbon, Sep. 2006.
- Colloquium, Embry-Riddle Aeronautical University, Prescott AZ, Mar 2007
- Invited Talk (HiRes and TA results and Status) The 6th International Workshop on Very High Energy Particle Astronomy, Hilo, HI, Mar 2007

- Contributed FLASH talk, 30th ICRC, Merida Mexico, July 2007.
- Invited TA talk, The Telescope Array and its Low Energy Extension (TA/TALE), Snowpac Workshop, Snowbird, Utah, Feb. 2009
- Contributed talk, TALE Fluorescence Detectors, APS April Meeting, Denver, CO May 2, 2009
- Contributed talk, Toward a comparison of fluorescence energy scale and spectra between Telescope Array and the High Resolution Fly's Eye 31st ICRC, Lodz, Poland, July 2009.
- Progress of the Telescope Array (TA) Experiment, invited presentation before the Particle Astrophysics Science Advisory Group (PASAG), a subpanel of the High Energy Physics Advisory Panel (HEPAP), Arlington, VA USA September 2009
- Contributed talk, The Telescope Array Low Energy Extension (TALE), International Symposium on Very High Energy Cosmic Ray Interactions (ISVHECRI 2010), FERMILAB, Batavia, IL USA, July, 2010.
- Contributed talk, Results from the High Resolution Fly's Eye Experiment International Symposium on the Recent Progress of Ultra-high Energy Cosmic Ray Observation (UHECR 2010) Nagoya, Japan. Dec. 2010
- Contributed talk, Results from the Telescope Array Experiment American Physical Society Division of Particle and Fields Meeting (DPF 2011), Brown University, Providence RI USA August, 2011.
- Contributed talk, Results from the Telescope Array Experiment American Physical Society Four Corners Section Meeting (DPF 2011), University of Arizona, Tucson, AZ USA October, 2011.
- Contributed talk, Recent Results from the Telescope Array Experiment, the XVth International Conference on Calorimetry in High Energy Physics (Calor 2012) Santa Fe, NM USA June, 2012.
- Contributed talk, Energy Spectrum and Composition of Ultra High Energy Cosmic Ray Showers Using Hybrid Analysis from Telescope Array", the Spring Meeting of the American Physical Society, Denver, CO USA April 2013

- Invited talk, Results from the Telescope Array Experiment, TeV Particle Astrophysics (TEVPA 2013), Irvine, CA USA August, 2013.
- Invited talk: “Recent Results from the Telescope Array Experiment:”, International Conference for High Energy Physics (ICHEP 2014), Valencia, Spain, July, 2014.
- Invited Highlight Talk for the Telescope Array Collaboration: “Summary of Results from the Telescope Array Experiment”, the 34th International Cosmic Ray Conference (ICRC2015), the Hague, the Netherlands, August, 2015.
- Invited talk for the Telescope Array Collaboration ”Update of Results from the Telescope Array Experiment”. 16th Roma International Conference on Astroparticle Physics, Frascati, Italy. June 22, 2016
- Invited talk for the Telescope Array Collaboration. ”Results from the Telescope Array Experiment”. International Conference for High Energy Physics (ICHEP), Chicago, August 4, 2016.
- Contributed Talk. “SFLASH: Absolute Measurement of Fluorescence Yield in from Shower Particles”. International Cosmic Ray Conference, July 2017, Busan, South Korea.
- Invited Talk. ”Results from the Telescope Array Experiment“, Cosmic Ray International Seminar (CRIS), July 2018, Portopalo di Capo Passero, Italy
- Physics Colloquium, Utah Valley University, September, 2018.
- Contributed Talk. ”The Cosmic-Ray Energy Spectrum between 2 PeV and 2 EeV Observed with the TALE detector in monocular mode”, UHECR 2018, Paris, September 2018
- Solicited Talk. ”Results from the Telescope Array Experiment”, 2019 Texas Symposium on Relativistic Astrophysics, Portsmouth, England, December 16, 2019.
- Solicited Talk. Update of the Telescope Array Experiment, 43rd COSPAR Scientific Assembly, originally scheduled for August, 2020, actually held as a virtual conference Jan 28 - Feb 4, 2021, Sidney, Australia.