

Matthew R. Shepherd

Curriculum Vitae

Contact Information

Department of Physics
Indiana University
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Professional Preparation

2005 Ph.D., Experimental Particle Physics, Cornell University
2003 M.S., Physics, Cornell University
2000 B.S., Physics with High Distinction, Indiana University
2000 B.S., Mathematics with Honors and High Distinction, Indiana University

Appointments

2011 - Associate Professor, Indiana University
2005 - 2011 Assistant Professor, Indiana University
2001 - 2005 Graduate Research Assistant, Cornell University
Fall 2001 Teaching Assistant, Cornell University
Fall 2000 Teaching Assistant, Cornell University
1997 - 2000 Undergraduate Research Assistant, Indiana University
Summer 1999 Summer Research Assistant, CERN
1997 - 1998 Teaching Assistant, Indiana University
Summer 1997 Summer Research Assistant, Jefferson Lab

Awards and Honors

2010 Trustees' Award for Undergraduate Instruction
2007 Konopinski Award for Outstanding Teaching
2000 - 2002 Cornell Fellow
1999 - 2000 Barry M. Goldwater Scholar
2000 Outstanding Undergraduate in Physics, Indiana University
1999 Hugh Brown Memorial Scholarship, Physics, Indiana University
1999 Elected to ΦBK
1999 Marie Wilcox Scholarship, Mathematics, Indiana University
1999 $\Sigma\Xi$ Undergraduate Research Award
1998 Elected to $\Sigma\Pi\Sigma$ National Physics Honor Society
1998 Outstanding Undergraduate Associate Instructor, Physics, Indiana University

Professional Service and Membership

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| 2012 - | GlueX Collaboration Deputy Spokesperson |
| 2010 - | BESIII Charmonium Working Group Co-Convener |
| 2007 - 2010 | Member of the GlueX Collaboration Board (2009: Chair) |
| 2007 - 2008 | CLEO-c Physics Analysis Coordinator |
| 2006 - 2010 | Indiana University Applied Physics Program Coordinator |
| since 2005 | Member of the American Physical Society |
| since 1999 | Member of the $\Sigma\Xi$ Scientific Research Society |

Selected Publications

Refereed publications are denoted with an asterisk ().*

G. S. Adams *et al.* [CLEO Collaboration], “Amplitude analyses of the decays $\chi_{c1} \rightarrow \eta\pi^+\pi^-$ and $\chi_{c1} \rightarrow \eta'\pi^+\pi^-$,” Phys. Rev. D **84**, 112009 (2011) [arXiv:1109.5843 [hep-ex]].*

P. U. E. Onyisi *et al.* [CLEO Collaboration], “Branching fractions for $\chi_{cJ} \rightarrow p\bar{p}\pi^0$, $p\bar{p}\eta$, and $p\bar{p}\omega$,” Phys. Rev. D **82**, 011103 (2010) [arXiv:1005.5374 [hep-ex]].*

J. V. Bennett, M. Kornicer, M. R. Shepherd and M. M. Ito, “Precision timing measurement of phototube pulses using a flash analog-to-digital converter,” Nucl. Instrum. Meth. A **622**, 225 (2010) [arXiv:1005.5349 [physics.ins-det]].*

M. R. Shepherd, “The GlueX Experiment,” *Proceedings of the Tenth Conference on the Intersection of Particle and Nuclear Physics*, AIP Conf. Proc. 1182, 816 (2009).

M. R. Shepherd, “Leptonic and semileptonic decays of the $D_{(s)}$ at CLEO-c,” *Proceedings of the International Conference on Particle and Nuclear Physics (PANIC08)*, 732 (2009).

M. R. Shepherd, “Decays and transitions of heavy quarkonia at CLEO-c,” *Proceedings of the International Conference on Particle and Nuclear Physics (PANIC08)*, 729 (2009).

R. E. Mitchell *et al.* [CLEO Collaboration], “ J/ψ and $\psi(2S)$ Radiative Decays to η_c ,” Phys. Rev. Lett. **102**, 011801 (2009) [arXiv:0805.0252 [hep-ex]].*

M. R. Shepherd, “Light meson spectroscopy results from CLEO-c,” *Proceedings of the International Workshop on e^+e^- Collisions from ϕ to ψ* , Nucl. Phys. B Proc. Suppl., 184 (2008).

M. R. Shepherd, “Heavy quark spectroscopy results from CLEO-c,” *Proceedings of the International Workshop on e^+e^- Collisions from ϕ to ψ* , Nucl. Phys. B Proc. Suppl., 343 (2008).

J. V. Bennett *et al.* [CLEO Collaboration], “Observation of χ_{cJ} radiative decays to light vector mesons,” Phys. Rev. Lett. **101**, 151801 (2008) [arXiv:0807.3718 [hep-ex]].*

B. D. Leverington *et al.*, “Performance of the prototype module of the GlueX electromagnetic barrel calorimeter,” Nucl. Instrum. Meth. A **596**, 327 (2008).*

M. R. Shepherd, “Hadronic Physics at CLEO-c,” *Proceedings of the XII International Conference on Hadronic Spectroscopy*, Frascati Physics Series, Volume XLVI (2007) [arXiv:0801.1024 [hep-ex]].

N. E. Adam *et al.* [CLEO Collaboration], “A Study of Exclusive Charmless Semileptonic B Decay and $|V_{ub}|$,” Phys. Rev. Lett. **99**, 041802 (2007) [arXiv:hep-ex/0703041].*

D. M. Asner *et al.* [CLEO Collaboration], “A Study of Exclusive Charmless Semileptonic B Decays and Extraction of $|V_{ub}|$ at CLEO,” Phys. Rev. D **76**, 012007 (2007) [arXiv:hep-ex/0703042].*

A. R. Dzierba *et al.*, “A partial wave analysis of the $\pi^-\pi^-\pi^+$ and $\pi^-\pi^0\pi^0$ systems and the search for a $J^{PC} = 1^{-+}$ meson,” *Phys. Rev. D* **73**, 072001 (2006) [arXiv:hep-ex/0510068].*

M. R. Shepherd, “The Differential Decay Rates of Exclusive Charmless Semileptonic B Meson Decay,” Ph.D. Thesis, Cornell University, 2005.

Talks

Invited talks are denoted with an asterisk ().*

“AmpTools: A Utility Library for Amplitude Analysis,” *Jefferson Lab Amplitude Analysis Workshop* Newport News (June, 2011).

“The Experimental Spectrum of Hadrons,” *APS April Meeting*, Anaheim (May, 2011).*

“Amplitude Analysis Tools,” *Workshop on Amplitude Analysis in Hadronic Physics*, ECT* Trento, Italy (February 2011).*

“Amplitude Analysis on GPUs,” *Parallelism in Nuclear Physics*, Newport News (January 2011).*

“Exploring QCD in the Charmonium System,” *Topical QCD*, Cairns, Australia (September 2010).*

“Searching for Interesting Bound States of QCD with the GlueX Experiment at Jefferson Lab,” *Strong Interactions in the 21st Century*, Tata Institute for Fundamental Research, Mumbai, India (February 2010).*

“Searching for Exotic Mesons at GlueX,” *Joint US-Japan Joint Workshop on Hadronic Physics*, Waikoloa, HI (October 2009).*

“The GlueX Experiment in Hall D,” *Seminar for students in the Jefferson Lab SULI Program*, Newport News, VA (July 2009).

“The GlueX Experiment,” *Tenth Conference on the Intersections of Particle and Nuclear Physics*, La Jolla, CA (May 2009).*

“Heavy Quarkonia Results from CLEO-c,” *SLAC Experimental Seminar*, Menlo Park, CA (May 2009).*

“Recent Hadronic Physics Results from CLEO-c,” *Third Meeting of the APS Topical Group on Hadronic Physics*, Denver, CO (May 2009).*

“Leptonic and Semileptonic Decays of D and D_s Mesons at CLEO-c,” *International Conference on Particles and Nuclei: PANIC08*, Eilat, Israel (November 2008).

“Heavy Quarkonia Results from CLEO-c,” *International Conference on Particles and Nuclei: PANIC08*, Eilat, Israel (November 2008).

“Hybrid Mesons: Prospects for the GlueX Experiment,” *The Nuclear Physics Challenge to Lattice QCD*, Glasgow, UK (April 2008).*

“Light Meson Spectroscopy Results from CLEO-c,” *International Workshop on e^+e^- Collisions from ϕ to ψ* , Frascati, Italy (April 2008).

“Heavy Quark Spectroscopy Results from CLEO-c,” *International Workshop on e^+e^- Collisions from ϕ to ψ* , Frascati, Italy (April 2008).

“The GlueX Detector,” *Workshop on Photon-Hadron Physics*, Jefferson Lab (March 2008).*

“Overview of $B \rightarrow V\ell\nu$ Measurements,” *HFAG V_{cb} Workshop*, Heidelberg, Germany (December 2007).*

“Amplitude Analysis: Physics and Tools,” *BES-Belle-CLEO-BaBar Joint Workshop on Charm Physics*, Beijing, China (November 2007).

“The GlueX Experiment,” *High Energy Physics Seminar*, University of Notre Dame (November 2007).*

“Hadronic Physics at CLEO-c,” *XII International Conference on Hadron Spectroscopy: HADRON07*, Frascati, Italy (October 2007).*

“Recent Results in Meson Spectroscopy,” *Jefferson Lab Users’ Group Meeting*, (June 2007).*

“The Search for Exotic Mesons at GlueX,” *High Energy/Nuclear Physics Seminar*, University of Rochester (November, 2006).*

“Experimental Status of and Future Prospects for Exotic Mesons,” *Second Meeting of the APS Topical Group on Hadronic Physics*, Nashville, TN (October, 2006).*

“ D , D_s , and Charmonium Physics at CLEO-c,” *MESON 2006*, Krakow, Poland (June, 2006).*

“A Charming Sample of CLEO-c Physics,” *High Energy Physics Seminar*, Indiana University, Bloomington, IN (January 2006).

“ B Physics from CLEO,” *XXXIXth Rencontres de Moriond, QCD and Hadronic Interactions*, La Thuile, Italy (March, 2004).*

“Charmless Semileptonic B Decays at CLEO,” *High Energy Physics Seminar*, Indiana University, Bloomington, IN (February, 2004).*

“Charmless Semileptonic B Decays at CLEO,” *Jefferson Lab Physics Seminar*, Newport News, VA (January, 2004).*

Full Publication List (Refereed Journals Only)

M. Ablikim *et al.* [BESIII Collaboration], “Higher-order multipole amplitude measurement in $\psi(2S) \rightarrow \gamma\chi_{c2}$,” *Phys. Rev. D* **84**, 092006 (2011) [arXiv:1110.1742 [hep-ex]].

M. Ablikim *et al.* [BESIII Collaboration], “Search for η'_c decays into vector meson pairs,” *Phys. Rev. D* **84**, 091102 (2011) [arXiv:1110.0949 [hep-ex]].

G. S. Adams *et al.* [CLEO Collaboration], “Amplitude analyses of the decays $\chi_{c1} \rightarrow \eta\pi^+\pi^-$ and $\chi_{c1} \rightarrow \eta'\pi^+\pi^-$,” *Phys. Rev. D* **84**, 112009 (2011) [arXiv:1109.5843 [hep-ex]].

M. Ablikim, M. N. Achasov, D. Alberto, Q. An, Z. H. An, J. Z. Bai, R. Baldini and Y. Ban *et al.*, “ $\eta\pi^+\pi^-$ Resonant Structure around 1.8 GeV/ c^2 and $\eta(1405)$ in $J/\psi \rightarrow \omega\eta\pi^+\pi^-$,” *Phys. Rev. Lett.* **107**, 182001 (2011) [arXiv:1107.1806 [hep-ex]].

M. Ablikim *et al.* [The BESIII Collaboration], “Search for CP and P violating pseudoscalar decays into $\pi\pi$,” *Phys. Rev. D* **84**, 032006 (2011) [arXiv:1106.5118 [hep-ex]].

N. Lowrey *et al.* [CLEO Collaboration], “Analysis of the Decay $D^0 \rightarrow K_S^0\pi^0\pi^0$,” *Phys. Rev. D* **84**, 092005 (2011) [arXiv:1106.3103 [hep-ex]].

M. Ablikim, M. N. Achasov, L. An, Q. An, Z. H. An, J. Z. Bai, R. Baldini and Y. Ban *et al.*, “Observation of χ_{c1} decays into vector meson pairs $\phi\phi$, $\omega\omega$, and $\omega\phi$,” *Phys. Rev. Lett.* **107**, 092001 (2011) [arXiv:1104.5068 [hep-ex]].

T. K. Pedlar *et al.* [CLEO Collaboration], “Observation of the $h_c(1P)$ using e^+e^- collisions above $D\bar{D}$ threshold,” *Phys. Rev. Lett.* **107**, 041803 (2011) [arXiv:1104.2025 [hep-ex]].

M. Ablikim [BESIII Collaboration], “Observation of χ_{cJ} decaying into the $p\bar{p}K^+K^-$ final state,” *Phys. Rev. D* **83**, 112009 (2011) [arXiv:1103.2661 [hep-ex]].

- M. Ablikim *et al.* [BESIII Collaboration], “Study of χ_{cJ} radiative decays into a vector meson,” Phys. Rev. D **83**, 112005 (2011) [arXiv:1103.5564 [hep-ex]].
- M. Ablikim *et al.* [BES III Collaboration], “Study of $a_0^0(980) - f_0(980)$ mixing,” Phys. Rev. D **83**, 032003 (2011) [arXiv:1012.5131 [hep-ex]].
- M. Ablikim *et al.* [BESIII Collaboration], “Confirmation of the $X(1835)$ and observation of the resonances $X(2120)$ and $X(2370)$ in $J/\psi \rightarrow \gamma\pi^+\pi^-\eta'$,” Phys. Rev. Lett. **106**, 072002 (2011) [arXiv:1012.3510 [hep-ex]].
- M. Ablikim *et al.* [The BESIII Collaboration], “Measurement of the Matrix Element for the Decay $\eta' \rightarrow \eta\pi^+\pi^-$,” Phys. Rev. D **83**, 012003 (2011) [arXiv:1012.1117 [hep-ex]].
- M. Ablikim *et al.* [BESIII Collaboration], “First Observation of the Decays $\chi_{cJ} \rightarrow \pi^0\pi^0\pi^0\pi^0$,” Phys. Rev. D **83**, 012006 (2011) [arXiv:1011.6556 [hep-ex]].
- J. Yelton *et al.* [CLEO Collaboration], “Studies of $D^+ \rightarrow \eta', \eta, \phi e^+\nu_e$,” Phys. Rev. D **84**, 032001 (2011) [arXiv:1011.1195 [hep-ex]].
- M. Ablikim, M. N. Achasov, L. An, Q. An, Z. H. An, J. Z. Bai, R. Baldini and Y. Ban *et al.*, “Evidence for ψ' decays into $\gamma\pi^0$ and $\gamma\eta$,” Phys. Rev. Lett. **105**, 261801 (2010) [arXiv:1011.0885 [hep-ex]].
- J. Libby *et al.* [CLEO Collaboration], “Model-independent determination of the strong-phase difference between D^0 and $\bar{D}^0 \rightarrow K_{S,L}^0 h^+ h^-$ ($h = \pi, K$) and its impact on the measurement of the CKM angle γ/ϕ_3 ,” Phys. Rev. D **82**, 112006 (2010) [arXiv:1010.2817 [hep-ex]].
- P. Rubin *et al.* [CLEO Collaboration], “Search for rare and forbidden decays of charm and charmed-strange mesons to final states $h^\pm e^\mp e^+$,” Phys. Rev. D **82**, 092007 (2010) [arXiv:1009.1606 [hep-ex]].
- Alexander:2010vd J. P. Alexander *et al.* [CLEO Collaboration], “Study of $\psi(2S)$ Decays to $\gamma p\bar{p}$, $\pi^0 p\bar{p}$ and $\eta p\bar{p}$ and Search for $p\bar{p}$ Threshold Enhancements,” Phys. Rev. D **82**, 092002 (2010) [arXiv:1007.2886 [hep-ex]].
- J. V. Bennett, M. Kornicer, M. R. Shepherd and M. M. Ito, “Precision timing measurement of phototube pulses using a flash analog-to-digital converter,” Nucl. Instrum. Meth. A **622**, 225 (2010) [arXiv:1005.5349 [physics.ins-det]].
- P. U. E. Onyisi *et al.* [CLEO Collaboration], “Branching fractions for $\chi_{cJ} \rightarrow p\bar{p}\pi^0$, $p\bar{p}\eta$, and $p\bar{p}\omega$,” Phys. Rev. D **82**, 011103 (2010) [arXiv:1005.5374 [hep-ex]].
- D. Besson *et al.* [CLEO Collaboration], “Update of the measurement of the cross section for $e^+e^- \rightarrow \psi(3770) \rightarrow$ hadrons,” Phys. Rev. Lett. **104**, 159901 (2010) [arXiv:1004.1358 [hep-ex]].
- R. A. Briere *et al.* [CLEO Collaboration], “Analysis of $D^+ \rightarrow K^- \pi^+ e^+ \nu_e$ and $D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$ Semileptonic Decays,” Phys. Rev. D **81**, 112001 (2010) [arXiv:1004.1954 [hep-ex]].
- J. Insler *et al.* [CLEO Collaboration], “Search for the Decay $J/\psi \rightarrow \gamma +$ invisible,” Phys. Rev. D **81**, 091101 (2010) [arXiv:1003.0417 [hep-ex]].
- D. M. Asner *et al.* [CLEO Collaboration], “Measurement Of Absolute Branching Fractions Of Inclusive Semileptonic Decays Of Charm And Charmed-Strange Mesons,” Phys. Rev. D **81**, 052007 (2010) [arXiv:0912.4232 [hep-ex]].
- D. Cronin-Hennessy *et al.* [CLEO Collaboration], “Search for $\psi(2S) \rightarrow \gamma\eta_c(2S)$ via fully reconstructed $\eta_c(2S)$ decays,” Phys. Rev. D **81**, 052002 (2010) [arXiv:0910.1324 [hep-ex]].
- G. Bonvicini *et al.* [CLEO Collaboration], “Measurement of the $\eta_b(1S)$ mass and the branching fraction for $\Upsilon(3S) \rightarrow \gamma\eta_b(1S)$,” Phys. Rev. D **81**, 031104 (2010) [arXiv:0909.5474 [hep-ex]].
- H. Mendez *et al.* [CLEO Collaboration], “Measurements of D Meson Decays to Two Pseudoscalar Mesons,” Phys. Rev. D **81**, 052013 (2010) [arXiv:0906.3198 [hep-ex]].
- M. Artuso *et al.* [CLEO Collaboration], “Higher-order multipole amplitudes in charmonium radiative transitions,” Phys. Rev. D **80**, 112003 (2009) [arXiv:0910.0046 [hep-ex]].

- P. Naik *et al.* [The CLEO Collaboration], “Measurement of the Pseudoscalar Decay Constant f_{D_s} Using $D_s^+ \rightarrow \tau^+\nu$, $\tau^+ \rightarrow \rho^+\bar{n}u$ Decays,” Phys. Rev. D **80**, 112004 (2009) [arXiv:0910.3602 [hep-ex]].
- J. Libby *et al.* [CLEO Collaboration], “Inclusive Radiative $\psi(2S)$ Decays,” Phys. Rev. D **80**, 072002 (2009) [arXiv:0909.0193 [hep-ex]].
- K. M. Ecklund *et al.* [CLEO Collaboration], “Study of the semileptonic decay $D_s^+ \rightarrow f_0(980)e^+\nu$ and implications for $B_s \rightarrow J/\psi f_0$,” Phys. Rev. D **80**, 052009 (2009) [arXiv:0907.3201 [hep-ex]].
- J. Y. Ge *et al.* [CLEO Collaboration], “ D_s^+ Exclusive Hadronic Decays Involving ω ,” Phys. Rev. D **80**, 051102 (2009) [arXiv:0906.2138 [hep-ex]].
- D. Besson *et al.* [CLEO Collaboration], “Improved measurements of D meson semileptonic decays to π and K mesons,” Phys. Rev. D **80**, 032005 (2009) [arXiv:0906.2983 [hep-ex]].
- G. S. Adams *et al.* [CLEO Collaboration], “Evidence for Decays of h_c to Multi-Pion Final States,” Phys. Rev. D **80**, 051106 (2009) [arXiv:0906.4470 [hep-ex]].
- T. K. Pedlar *et al.* [CLEO Collaboration], “Charmonium decays to $\gamma\pi^0$, $\gamma\eta$, and $\gamma\eta'$,” Phys. Rev. D **79**, 111101 (2009) [arXiv:0904.1394 [hep-ex]].
- P. Rubin *et al.* [CLEO Collaboration], “Search for $D^0 \rightarrow pe^-$ and $D^0 \rightarrow \bar{p}e^+$,” Phys. Rev. D **79**, 097101 (2009) [arXiv:0904.1619 [hep-ex]].
- S. Dobbs *et al.* [CLEO Collaboration], “Inclusive Hadron Yields from D_s^+ Decays,” Phys. Rev. D **79**, 112008 (2009) [arXiv:0904.2417 [hep-ex]].
- J. Yelton *et al.* [CLEO Collaboration], “Absolute Branching Fraction Measurements for Exclusive D_s Semileptonic Decays,” Phys. Rev. D **80**, 052007 (2009) [arXiv:0903.0601 [hep-ex]].
- R. E. Mitchell *et al.* [CLEO Collaboration], “Dalitz Plot Analysis of $D_s \rightarrow K^+K^-\pi^+$,” Phys. Rev. D **79**, 072008 (2009) [arXiv:0903.1301 [hep-ex]].
- R. A. Briere *et al.* [CLEO Collaboration], “First model-independent determination of the relative strong phase between D^0 and $\bar{D}^0 \rightarrow K_S^0\pi^+\pi^-$ and its impact on the CKM Angle γ/ϕ_3 measurement,” Phys. Rev. D **80**, 032002 (2009) [arXiv:0903.1681 [hep-ex]].
- N. Lowrey *et al.* [CLEO Collaboration], “Determination of the $D^0 \rightarrow K^-\pi^+\pi^0$ and $D^0 \rightarrow K^-\pi^+\pi^+\pi^-$ Coherence Factors and Average Strong-Phase Differences Using Quantum-Correlated Measurements,” Phys. Rev. D **80**, 031105 (2009) [arXiv:0903.4853 [hep-ex]].
- P. U. E. Onyisi *et al.* [CLEO Collaboration], “Improved Measurement of Absolute Branching Fraction of $D_s \rightarrow \tau\nu$,” Phys. Rev. D **79**, 052002 (2009) [arXiv:0901.1147 [hep-ex]].
- J. P. Alexander *et al.* [CLEO Collaboration], “Measurement of $\mathcal{B}D_s^+ \rightarrow \ell^+\nu$ and the Decay Constant $f_{D_s^+}$ From 600 $/pb^{-1}$ of e^\pm Annihilation Data Near 4170 MeV,” Phys. Rev. D **79**, 052001 (2009) [arXiv:0901.1216 [hep-ex]].
- D. M. Asner *et al.* [CLEO Collaboration], “New Measurement of Exclusive Decays of the χ_{c0} and χ_{c2} to Two-Meson Final States,” Phys. Rev. D **79**, 072007 (2009) [arXiv:0811.0586 [hep-ex]].
- J. Y. Ge *et al.* [CLEO Collaboration], “Study of $D^0 \rightarrow \pi^-e^+\nu_e$, $D^+ \rightarrow \pi^0e^+\nu_e$, $D^0 \rightarrow K^-e^+\nu_e$, and $D^+ \rightarrow \bar{K}^0e^+\nu_e$ in Tagged Decays of the $\psi(3770)$ Resonance,” Phys. Rev. D **79**, 052010 (2009) [arXiv:0810.3878 [hep-ex]].
- S. R. Bhari *et al.* [CLEO Collaboration], “Improved Measurement of Branching Fractions for $\pi\pi$ Transitions among $\Upsilon(nS)$ States,” Phys. Rev. D **79**, 011103 (2009) [arXiv:0809.1110 [hep-ex]].
- P. Naik *et al.* [CLEO Collaboration], “Observation of η' decays to $\pi^+\pi^-\pi^0$ and $\pi^+\pi^-e^+e^-$,” Phys. Rev. Lett. **102**, 061801 (2009) [arXiv:0809.2587 [hep-ex]].

- R. E. Mitchell *et al.* [CLEO Collaboration], “Observation of $D^+ \rightarrow \eta e^+ \nu_e$,” Phys. Rev. Lett. **102**, 081801 (2009) [arXiv:0802.4222 [hep-ex]].
- D. Cronin-Hennessy *et al.* [CLEO Collaboration], “Measurement of Charm Production Cross Sections in e^+e^- Annihilation at Energies between 3.97 and 4.26 GeV,” Phys. Rev. D **80**, 072001 (2009) [arXiv:0801.3418 [hep-ex]].
- R. E. Mitchell *et al.* [CLEO Collaboration], “ J/ψ and $\psi(2S)$ Radiative Decays to η_c ,” Phys. Rev. Lett. **102**, 011801 (2009) [arXiv:0805.0252 [hep-ex]].
- K. M. Ecklund *et al.* [CLEO Collaboration], “Two-Photon Widths of the χ_{cJ} States of Charmonium,” Phys. Rev. D **78**, 091501(R) (2008) [arXiv:0803.2869 [hep-ex]].
- R. A. Briere *et al.* [CLEO Collaboration], “Inclusive $\chi_{bJ}(nP)$ Decays to $D^0 X$,” Phys. Rev. D **78**, 092007 (2008) [arXiv:0807.3757 [hep-ex]].
- D. M. Asner *et al.*, “Observation of $\chi_b(1P_J, 2P_J)$ decays to light hadrons,” Phys. Rev. D **78**, 091103 (2008) [arXiv:0808.0933 [hep-ex]].
- P. Rubin *et al.* [CLEO Collaboration], “Search for CP Violation in the Dalitz-Plot Analysis of $D^\pm \rightarrow K^+ K^- \pi^\pm$,” Phys. Rev. D **78**, 072003 (2008) [arXiv:0807.4545 [hep-ex]].
- W. Love *et al.* [CLEO Collaboration], “Search for Lepton Flavor Violation in Upsilon Decays,” Phys. Rev. Lett. **101**, 201601 (2008) [arXiv:0807.2695 [hep-ex]].
- J. V. Bennett *et al.* [CLEO Collaboration], “Observation of χ_{cJ} radiative decays to light vector mesons,” Phys. Rev. Lett. **101**, 151801 (2008) [arXiv:0807.3718 [hep-ex]].
- W. Love *et al.* [CLEO Collaboration], “Search for Very Light CP -Odd Higgs Boson in Radiative Decays of $\Upsilon(1S)$,” Phys. Rev. Lett. **101**, 151802 (2008) [arXiv:0807.1427 [hep-ex]].
- Q. He *et al.* [CLEO Collaboration], “Observation of $\Upsilon(2S) \rightarrow \eta \Upsilon(1S)$ and search for related transitions,” Phys. Rev. Lett. **101**, 192001 (2008) [arXiv:0806.3027 [hep-ex]].
- J. Libby *et al.* [CLEO Collaboration], “Measurement of the η' -meson mass using $J/\psi \rightarrow \gamma \eta'$,” Phys. Rev. Lett. **101**, 182002 (2008) [arXiv:0806.2344 [hep-ex]].
- Q. He *et al.* [CLEO Collaboration], “First Observation of Exclusive χ_{cJ} Decays to Two Charged and Two Neutral Hadrons,” Phys. Rev. D **78**, 092004 (2008) [arXiv:0806.1227 [hep-ex]].
- B. D. Leverington *et al.*, “Performance of the prototype module of the GlueX electromagnetic barrel calorimeter,” Nucl. Instrum. Meth. A **596**, 327 (2008).
- G. S. Adams *et al.* [CLEO Collaboration], “Observation of $J/\psi \rightarrow 3\gamma$,” Phys. Rev. Lett. **101**, 101801 (2008) [arXiv:0806.0671 [hep-ex]].
- B. I. Eisenstein *et al.* [CLEO Collaboration], “Precision Measurement of $\mathcal{B}(D^+ \rightarrow \mu^+ \nu)$ and the Pseudoscalar Decay Constant f_{D^+} ,” Phys. Rev. D **78**, 052003 (2008) [arXiv:0806.2112 [hep-ex]].
- G. Bonvicini *et al.* [CLEO Collaboration], “Dalitz plot analysis of the $D^+ \rightarrow K^- \pi^+ \pi^+$ decay,” Phys. Rev. D **78**, 052001 (2008) [arXiv:0802.4214 [hep-ex]].
- D. Besson *et al.* [CLEO Collaboration], “Inclusive Radiative J/ψ Decays,” Phys. Rev. D **78**, 032012 (2008) [arXiv:0806.0315 [hep-ex]].
- P. Naik *et al.* [CLEO Collaboration], “Measurement Of Exclusive Baryon-Antibaryon Decays Of χ_{cJ} Mesons,” Phys. Rev. D **78**, 031101 (2008) [arXiv:0806.1715 [hep-ex]].
- S. Dobbs *et al.* [CLEO Collaboration], “Precision Measurement of the Mass of the $h_c(^1P_1)$ State of Charmonium,” Phys. Rev. Lett. **101**, 182003 (2008) [arXiv:0805.4599 [hep-ex]].

- D. M. Asner *et al.* [CLEO Collaboration], “Determination of the $D^0 \rightarrow K^+\pi^-$ Relative Strong Phase Using Quantum-Correlated Measurements in $e^+e^- \rightarrow D^0\bar{D}^0$ at CLEO,” Phys. Rev. D **78**, 012001 (2008) [arXiv:0802.2268 [hep-ex]].
- H. Mendez *et al.* [CLEO Collaboration], “Branching Fractions for Transitions of $\psi(2S)$ to J/ψ ,” Phys. Rev. D **78**, 011102 (2008) [arXiv:0804.4432 [hep-ex]].
- M. Artuso *et al.* [CLEO Collaboration], “Measurement of exclusive D meson decays to η and η' final states and $SU(3)$ amplitude analysis,” Phys. Rev. D **77**, 092003 (2008) [arXiv:0802.2664 [hep-ex]].
- G. Bonvicini *et al.* [CLEO Collaboration], “Absolute Branching Fractions of Cabibbo-Suppressed $D \rightarrow K\bar{K}$ Decays,” Phys. Rev. D **77**, 091106 (2008) [arXiv:0803.0793 [hep-ex]].
- J. L. Rosner *et al.* [CLEO Collaboration], “Determination of the Strong Phase in $D^0 \rightarrow K^+\pi^-$ Using Quantum-Correlated Measurements,” Phys. Rev. Lett. **100**, 221801 (2008) [arXiv:0802.2264 [hep-ex]].
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