

RICHARD E. HUGHES

TITLE: PROFESSOR OF PHYSICS

The Ohio State University ◊ 191 West Woodruff Ave ◊ Columbus, OH 43210

(614) · 292 · 7370 ◊ hughes@physics.osu.edu

EDUCATION

University of Rochester, Rochester, NY.

1992-1996

Post-doctorate

Advisor: Prof. Paul Tipton (Now at Yale University)

University of Pennsylvania, Philadelphia, PA.

February 1992

Ph.D. Physics

Thesis topic: *Reconstruction of B Meson Decays and Measurement of the b Quark and B Meson Production Cross Sections* Advisor: Prof. Larry Gladney

University of Pennsylvania, Philadelphia, PA.

June 1986

B.Sc. Electrical Engineering

PROFESSIONAL POSITIONS HELD

10/05-Present	Professor; The Ohio State University, Columbus OH
6/06-6/12	Vice-Chair, Undergraduate Studies; The Ohio State University, Columbus OH
10/01-9/05	Associate Professor; The Ohio State University, Columbus OH
10/96-9/01	Assistant Professor; The Ohio State University, Columbus OH
1/96-10/96	Wilson Fellow; Fermi National Accelerator Laboratory, Batavia IL
1992-1996	Postdoctoral Research Associate; University of Rochester, Rochester NY
1987-1992	Graduate Research Assistant; University of Pennsylvania, Philadelphia PA

SIGNIFICANT PROFESSIONAL ACTIVITIES: ADMINISTRATIVE

Vice Chair Physics Undergraduate Studies

June 2006 - June 2012

- Academic advisor for all Physics and Engineering Physics Majors (typically about 220 students).
- Developed and implemented new assessment tools and techniques for undergraduate major program.
- Oversaw growth in undergraduate program of ~ 50% from 2005-2012.
- Responsible for departmental outreach: supervised Physics portion of State finals of Science Olympiad 2007-2011; PI for 2010 Conference for Undergraduate Women in Physics hosted by Ohio State Physics Department; developed summer science camp for middle school girls 2006-2012.
- Primary person responsible for quarter to semester conversion for Physics Department; conversion of all major and non-major courses to new semester format, major redesign of both Arts & Sciences Physics and Engineering Physics curricula.

SIGNIFICANT PROFESSIONAL ACTIVITIES: RESEARCH

Discovery and Study of the Higgs Boson

2004 - Present

Work done as member of the CDF Collaboration, studying $p\bar{p}$ collisions at the Fermilab Tevatron, and the CMS collaboration studying pp collisions at the LHC.

- Initiated first search for Higgs boson at CDF using ZH associated production.
- Initiated first search for Higgs boson at CDF using $t\bar{t}H$ associated production.
- Major contributions to CDF search for WH associated production.
- Major contributions to CDF search for $met(b\bar{b})H$ associated production.
- Member of team that discovered first evidence for $H \rightarrow b\bar{b}$ at the Tevatron
- Initiated first search for Higgs boson at the LHC using $t\bar{t}H$ associated production.

Dark Matter Search Using Gamma Rays Detected by the Fermi-LAT

2004 - Present

Work done as a member of the Fermi Large Area Telescope (LAT) collaboration. Fermi-LAT is a satellite observatory designed to detect gamma-ray sources in the energy band extending from 10 MeV to more than 200 GeV, launched in 2008.

- Pre-launch verification of Electronics, Data Acquisition, and Flight Software.
- Lead developer of the On-board Gamma Ray Burst Science software.
- Major contributions to post-launch verification of Point Spread Function.
- Contributed to search for dark matter in the Milky Way Halo.
- Initiated first study of the high energy proton spectrum using Fermi-LAT.
- Novel contributions to search for dark matter using gamma ray lines.

Discovery and Study of the Top Quark

October 1992 - Present

Work done as a member of the CDF Collaboration, studying $p\bar{p}$ collisions at the Fermilab Tevatron

- Leading member of team that discovered the top quark in 1995.
- Wrote the original vertexing algorithm used to identify B mesons from top decay.
- Led measurements of the $t\bar{t}$ production cross section, top quark mass, search for resonant structure in the $t\bar{t}$ invariant mass spectrum.
- Contributed to team that discovered "single top", in which top quarks are produced singly via the electroweak interaction.

HARDWARE EXPERIENCE

Level 2 Co-Manager, 3D Track Trigger System

2004-2008

- Full 3-dimensional charged track reconstruction at the Level 1 trigger at CDF, for the first time in a hadron collider environment
- Lead firmware designer for main tracking electronics board.
- Managed the development of several hundred new digital electronics boards and associated firmware by personnel at 3 universities and Fermilab.
- Device successfully determines particle invariant masses in time for the Level 2 trigger decision

Project Manager, Online 2D Track Trigger System

2004-2008

- Led the design, construction, and commissioning of the eXtremely Fast Tracker (XFT), an online, pipelined, track finding trigger processor, consisting of several hundred digital electronics boards.
- Lead firmware designer for main algorithmic chip on 2D tracking board.
- Device successfully identified high momentum charged tracks in time for use in the Level 1 trigger.

PROFESSIONAL SERVICE

2012 Proposal Reviewer for Swiss National Science Foundation
2009-2011 Technical Reviewer for DOE Particle and Astroparticle Physics Grants
2008 DOE External Program Review Committee, Harvard University
2007 DOE External Program Review Committee, Lawrence Berkeley National Laboratory
2004-2006 User's Executive Committee, Fermi National Accelerator Laboratory
2000 DPF 2000 Conference, Local Organizing Committee
1998 Session Chair, 1998 APS Meeting

HONORS AND AWARDS

2010 Fellow of the American Physical Society
2008 Distinguished Undergraduate Research Mentor
2008 Honors Faculty Service Award
2005 Ohio State University Alumni Award for Distinguished Teaching
1998 U.S. Department of Energy Outstanding Junior Investigator

SELECTED PUBLICATIONS

As a Member of the CMS Collaboration

116 Total papers

- **“Search for a standard-model-like Higgs boson with a mass in the range 145 to 1000 GeV at the LHC”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Eur. Phys. J. C **73**, 2469 (2013)
- **“Studies of jet mass in dijet and W/Z + jet events”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **1305**, 090 (2013)
- **“Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s} = 7$ and 8 TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **06**, 081 (2013)
- **“A new boson with a mass of 125-GeV observed with the CMS experiment at the Large Hadron Collider”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Science **338**, 1569 (2012).
- **“Measurement of associated production of vector bosons and top quark-antiquark pairs at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Rev. Lett. **110**, 172002 (2013)
- **“Search for the standard model Higgs boson produced in association with a top-quark pair in pp collisions at the LHC”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **1305**, 145 (2013)
- **“Measurement of the X(3872) production cross section via decays to J/psi pi pi in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **1304**, 154 (2013)
- **“Search for a Higgs boson decaying into a b-quark pair and produced in association with b quarks in proton-proton collisions at 7 TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Lett. B **722**, 207 (2013)
- **“Search for new physics in final states with a lepton and missing transverse energy in pp collisions at the LHC”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Rev. D **87**, 072005 (2013)
- **“Study of the underlying event at forward rapidity in pp collisions at $\sqrt{s} = 0.9, 2.76,$ and 7 TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **1304**, 072 (2013)
- **“Search for pair-produced dijet resonances in four-jet final states in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Rev. Lett. **110**, 141802 (2013)
- **“Measurement of the t t-bar production cross section in the all-jet final state in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., JHEP **1305**, 065 (2013)
- **“Measurement of the top-antitop production cross section in the tau+jets channel in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Eur. Phys. J. C **73**, 2386 (2013)
- **“Search for contact interactions using the inclusive jet p_T spectrum in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Rev. D **87**, 052017 (2013)
- **“Measurement of W+W- and ZZ production cross sections in pp collisions at $\sqrt{s} = 8$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Lett. B **721**, 190 (2013)
- **“Event shapes and azimuthal correlations in Z + jets events in pp collisions at $\sqrt{s} = 7$ TeV”**, S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Lett. B **722**, 238 (2013)
- **“Search for supersymmetry in events with opposite-sign dileptons and missing transverse energy using an artificial neural network”** S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Phys. Rev. D **87**, 072001 (2013)
- **“Search for supersymmetry in pp collisions at $\sqrt{s} = 7$ TeV in events with a single lepton, jets, and missing transverse momentum”** S. Chatrchyan, R. Hughes *et al.* [CMS Collaboration]., Eur. Phys. J. C **73**, 2404 (2013)

- **“On the mass and spin-parity of the Higgs boson candidate via its decays to Z boson pairs”**
S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration].
Phys. Rev. Lett. **110**, 081803 (2013)
- **“Measurements of differential jet cross sections in proton-proton collisions at $\sqrt{s} = 7$ TeV with the CMS detector”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Rev. D **87**, 112002 (2013)
- **“Measurement of the $t\bar{t}$ production cross section in pp collisions at $\sqrt{s} = 7$ TeV with lepton + jets final states”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Lett. B **720**, 83 (2013)
- **“Search for new physics in events with same-sign dileptons and b jets in pp collisions at $\sqrt{s} = 8$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1303**, 037 (2013)
- **“Search for heavy narrow dilepton resonances in pp collisions at $\sqrt{s} = 7$ TeV and $\sqrt{s} = 8$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Lett. B **720**, 63 (2013)
- **“Search for contact interactions in opposite-sign dimuon events in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Rev. D **87**, 032001 (2013)
- **“Search for heavy resonances in the W/Z-tagged dijet mass spectrum in pp collisions at 7 TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Lett. B **723**, 280 (2013)
- **“Search for long-lived particles decaying to photons and missing energy in proton-proton collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Lett. B **722**, 273 (2013)
- **“Search for exotic resonances decaying into WZ/ZZ in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1302**, 036 (2013)
- **“Measurement of the ZZ production cross section and search for anomalous couplings in 2 l2l' final states in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1301**, 063 (2013)
- **“Search for new physics in events with photons, jets, and missing transverse energy in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1303**, 111 (2013)
- **“Identification of b-quark jets with the CMS experiment”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JINST **8**, P04013 (2013)
- **“Search for Z' resonances decaying to $t\bar{t}$ in dilepton+jets final states in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Rev. D **87**, 072002 (2013)
- **“Search for supersymmetry in final states with a single lepton, b -quark jets, and missing transverse energy in proton-proton collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Phys. Rev. D **87**, 052006 (2013)
- **“Search in leptonic channels for heavy resonances decaying to long-lived neutral particles”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1302**, 085 (2013)
- **“Measurement of differential top-quark pair production cross sections in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Eur. Phys. J. C **73**, 2339 (2013)
- **“Search for supersymmetry in final states with missing transverse energy and 0, 1, 2, or at least 3 b-quark jets in 7 TeV pp collisions using the variable α_T ”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. JHEP **1301**, 077 (2013)
- **“Measurement of the sum of WW and WZ production with W +dijet events in pp collisions at $\sqrt{s} = 7$ TeV”** S. Chatrchyan , R. Hughes *et al.* [CMS Collaboration]. Eur. Phys. J. C **73**, 2283 (2013)
- **“Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC”** S. Chatrchyan, R. Hughes *et al.*; Phys. Lett. B **716**, 30 (2012)

- **“Search for Supersymmetry with Like-Sign Lepton-Tau Events at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett.
- **“Search for $B_s \rightarrow \mu^+ \mu^-$ and $B_d \rightarrow \mu^+ \mu^-$ decays with the full CDF Run II data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **87**, 072003 (2013)
- **“Measurement of the cross section for prompt isolated diphoton production using the full CDF Run II data sample”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **110**, 101801 (2013)
- **“Search for a two-Higgs-boson doublet using a simplified model in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **110**, 121801 (Mar, 2013)
- **“Search for Resonant Top-antitop Production in the Semi-leptonic Decay Mode Using the Full CDF Data Set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **110**, 121802 (Mar, 2013)
- **“Measurement of W -Boson Polarization in Top-quark Decay using the Full CDF Run II Data Set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **87**, 031104 (2013)
- **“Measurement of the top quark forward-backward production asymmetry and its dependence on event kinematic properties”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **87**, 092002 (2013)
- **“Measurement of the Mass Difference Between Top and Anti-top Quarks at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **87**, 052013 (2013)
- **“Search for a heavy vector boson decaying to two gluons in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **86**, 112002 (2012)
- **“Measurement of the B_c^- meson lifetime in the decay $B_c^- \rightarrow J/\psi \pi^-$ ”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **87**, 011101 (2013)
- **“Observation of the Production of a W Boson in Association with a Single Charm Quark”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **110**, 071801 (2013)
- **“Search for the Higgs boson in the all-hadronic final state using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., JHEP **1302**, 004 (2013)
- **“Measurements of the Top-quark Mass and the $t\bar{t}$ Cross Section in the Hadronic $\tau+$ Jets Decay Channel at $\sqrt{s} = 1.96$ TeV”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 192001 (2012)
- **“Measurement of the Bottom-Strange Meson Mixing Phase in the Full CDF Data Set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 171802 (2012)
- **“Search for the standard model Higgs boson produced in association with top quarks using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 181802 (2012)
- **“Transverse momentum cross section of e^+e^- pairs in the Z -boson region from $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **86**, 052010 (2012)
- **“Precision Top-Quark Mass Measurements at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 152003 (2012)
- **“Evidence for a particle produced in association with weak bosons and decaying to a bottom-antibottom quark pair in Higgs boson searches at the Tevatron”**, T. Aaltonen, R. Hughes *et al.* [CDF and D0 Collaborations]., Phys. Rev. Lett. **109**, 071804 (2012)

- **“Search for a Higgs boson in the diphoton final state using the full CDF data set from proton-antiproton collisions at $\sqrt{s} = 1.96$ TeV”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Lett. B **717**, 173 (2012)
- **“Novel inclusive search for the Higgs boson in the four-lepton final state at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **86**, 072012 (2012)
- **“Search for Neutral Higgs Bosons in Events with Multiple Bottom Quarks at the Tevatron”**, T. Aaltonen, R. Hughes *et al.* [CDF and D0 Collaborations]., Phys. Rev. D **86**, 091101 (2012)
- **“Measurement of the difference of CP-violating asymmetries in $D^0 \rightarrow K^+K^-$ and $D^0 \rightarrow \pi^+\pi^-$ decays at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 111801 (2012)
- **“Search for the standard model Higgs boson decaying to a $b\bar{b}$ pair in events with no charged leptons and large missing transverse energy using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 111805 (2012)
- **“Combined search for the standard model Higgs boson decaying to a bb pair using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 111802 (2012)
- **“Search for the standard model Higgs boson decaying to a bb pair in events with two oppositely-charged leptons using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 111803 (2012)
- **“Search for the standard model Higgs boson decaying to a bb pair in events with one charged lepton and large missing transverse energy using the full CDF data set”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. Lett. **109**, 111804 (2012)
- **“Combination of the top-quark mass measurements from the Tevatron collider”**, T. Aaltonen, R. Hughes *et al.* [CDF and D0 Collaborations]., Phys. Rev. D **86**, 092003 (2012)
- **“Measurement of CP-violation asymmetries in $D^0 \rightarrow K_S\pi^+\pi^-$ ”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **86**, 032007 (2012)
- **“Search for the standard model Higgs boson produced in association with a W^\pm boson with 7.5 fb^{-1} integrated luminosity at CDF”**, T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]., Phys. Rev. D **86**, 032011 (2012)
- **“First Observation of Electroweak Single Top Quark Production”** T. Aaltonen, R. Hughes *et al.* [CDF Collaboration]. Phys. Rev. Lett. **103**, 092002 (2009)
- **“Observation of $B^0(s)$ - anti- $B^0(s)$ Oscillations”** A. Abulencia, R. Hughes *et al.* [CDF Collaboration]. Phys. Rev. Lett. **97**, 242003 (2006)
- **“Observation of top quark production in $\bar{p}p$ collisions”** F. Abe, R. Hughes *et al.* [CDF Collaboration]. Phys. Rev. Lett. **74**, 2626 (1995)

- **"The Fermi All-sky Variability Analysis: A list of flaring gamma-ray sources and the search for transients in our Galaxy"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Astrophys. J.* **771**, 57 (2013)
- **"Detection of the Characteristic Pion-Decay Signature in Supernova Remnants"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Science* **339**, 807 (2013)
- **"Multi-wavelength observations of blazar AO 0235+164 in the 2008-2009 flaring state"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Astrophys. J.* **751**, 159 (2012)
- **"The Fermi Large Area Telescope On Orbit: Event Classification, Instrument Response Functions, and Calibration"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Astrophys. J. Suppl.* **203**, 4 (2012)
- **"GeV Observations of Star-forming Galaxies with *Fermi* LAT"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Astrophys. J.* **755**, 164 (2012)
- **"Constraints on the Galactic Halo Dark Matter from Fermi-LAT Diffuse Measurements"**, M. Ackermann, R. Hughes *et al.* [LAT Collaboration]., *Astrophys. J.* **761**, 91 (2012)
- **"Fermi LAT Search for Dark Matter in Gamma-ray Lines and the Inclusive Photon Spectrum"**, M. Ackermann, R. Hughes *et al.* [LAT Collaboration]., *Phys. Rev. D* **86**, 022002 (2012)
- **"Anisotropies in the diffuse gamma-ray background measured by the Fermi LAT"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Phys. Rev. D* **85**, 083007 (2012)
- **"Search for Dark Matter Satellites using the FERMI-LAT"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Astrophys. J.* **747**, 121 (2012)
- **"Limits on Large Extra Dimensions Based on Observations of Neutron Stars with the Fermi-LAT"**, M. Ajello, R. Hughes *et al.* [Fermi-LAT Collaboration]., *JCAP* **1202**, 012 (2012)
- **"Measurement of separate cosmic-ray electron and positron spectra with the Fermi Large Area Telescope"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Phys. Rev. Lett.* **108**, 011103 (2012)
- **"Constraining Dark Matter Models from a Combined Analysis of Milky Way Satellites with the Fermi Large Area Telescope"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Phys. Rev. Lett.* **107**, 241302 (2011)
- **"Gamma-Ray and Parsec-Scale Jet Properties of a Complete Sample of Blazars From the MOJAVE Program"**, M. L. Lister, R. Hughes *et al.* [MOJAVE and Fermi LAT Collaborations]., *Astrophys. J.* **742**, 27 (2011)
- **"Insights Into the High-Energy Gamma-ray Emission of Markarian 501 from Extensive Multi-frequency Observations in the Fermi Era"**, A. A. Abdo, R. Hughes *et al.* [LAT and MAGIC and VERITAS Collaborations]., *Astrophys. J.* **727**, 129 (2011)
- **"Fermi-LAT Search for Pulsar Wind Nebulae around gamma-ray Pulsars"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Astrophys. J.* **726**, 35 (2011)
- **"Constraints on the Cosmic-Ray Density Gradient beyond the Solar Circle from Fermi gamma-ray Observations of the Third Galactic Quadrant"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Astrophys. J.* **726**, 81 (2011)
- **"Searches for Cosmic-Ray Electron Anisotropies with the Fermi Large Area Telescope"**, M. Ackermann, R. Hughes *et al.* [Fermi-LAT Collaboration]., *Phys. Rev. D* **82**, 092003 (2010)
- **"Fermi LAT observations of cosmic-ray electrons from 7 GeV to 1 TeV"**, M. Ackermann, R. Hughes *et al.* [Fermi LAT Collaboration]., *Phys. Rev. D* **82**, 092004 (2010)
- **"Fermi LAT Search for Photon Lines from 30 to 200 GeV and Dark Matter Implications"** A. A. Abdo, R. Hughes *et al.*. *Phys. Rev. Lett.* **104**, 091302 (2010)

- **"Fermi Observations of High-Energy Gamma-Ray Emission from GRB 080916C"** A. A. Abdo, R. Hughes *et al.* [Fermi LAT and Fermi GBM Collaborations]. *Science* **323**, 1688 (2009).
- **"Fermi Large Area Telescope Observation of a Gamma-ray Source at the Position of Eta Carinae"** , A. A. Abdo R. Hughes *et al.* [The Fermi LAT Collaboration]. , *Astrophys. J.* **723**, 649 (2010)
- **"Fermi Observations of GRB 090510: A Short Hard Gamma-Ray Burst with an Additional, Hard Power-Law Component from 10 keV to GeV Energies"** , M. Ackermann R. Hughes *et al.* [Fermi LAT and GBM Collaborations]. , *Astrophys. J.* **716**, 1178 (2010)
- **"Constraints on Cosmological Dark Matter Annihilation from the Fermi-LAT Isotropic Diffuse Gamma-Ray Measurement"** , A. A. Abdo R. Hughes *et al.* [Fermi-LAT Collaboration]. , *JCAP* **1004**, 014 (2010)
- **"The Spectrum of the Isotropic Diffuse Gamma-Ray Emission Derived From First-Year Fermi Large Area Telescope Data"** , A. A. Abdo , R. Hughes *et al.* [Fermi-LAT Collaboration]. , *Phys. Rev. Lett.* **104**, 101101 (2010)
- **"Fermi Large Area Telescope First Source Catalog"** , A. A. Abdo , R. Hughes *et al.* [Fermi-LAT Collaboration]. , *Astrophys. J. Suppl.* **188**, 405 (2010)
- **"Observations of Milky Way Dwarf Spheroidal galaxies with the Fermi-LAT detector and constraints on Dark Matter models"** , A. A. Abdo , R. Hughes *et al.* [Fermi-LAT Collaboration]. , *Astrophys. J.* **712**, 147 (2010)
- **"Fermi Large Area Telescope Observations of the Cosmic-Ray Induced gamma-ray Emission of the Earth's Atmosphere"** , A. A. Abdo , R. Hughes *et al.* [Fermi-LAT Collaboration]. , *Phys. Rev. D* **80**, 122004 (2009)
- **"Fermi Large Area Telescope Measurements of the Diffuse Gamma-Ray Emission at Intermediate Galactic Latitudes"** , A. A. Abdo , R. Hughes *et al.* [Fermi LAT Collaboration]. , *Phys. Rev. Lett.* **103**, 251101 (2009)
- **"Fermi Observations of the Very Hard Gamma-ray Blazar PG 1553+113"** , A. A. Abdo , R. Hughes *et al.* [Fermi-LAT Collaboration]. , *Astrophys. J.* **708**, 1310 (2010)
- **"Gamma-ray and Radio Properties of Six Pulsars Detected by the Fermi Large Area Telescope"** , P. Weltevrede , R. Hughes *et al.* [Fermi LAT Collaboration]. , *Astrophys. J.* **708**, 1426 (2010)
- **"Fermi Large Area Telescope Observations of the Crab Pulsar and Nebula"** , A. A. Abdo , R. Hughes *et al.* [Fermi Pulsar Timing Consortium Fermi-LAT Collaboration]. , *Astrophys. J.* **708**, 1254 (2010)
- **"Fermi LAT Observations of LS 5039"** , A. A. Abdo , R. Hughes *et al.* [Fermi LAT Collaboration]. , *Astrophys. J.* **706**, L56 (2009)
- **"Fermi observations of TeV-selected AGN"** , A. A. Abdo , R. Hughes *et al.* [Fermi LAT Collaboration]. , *Astrophys. J.* **707**, 1310 (2009)
- **"Multiwavelength monitoring of the enigmatic Narrow-Line Seyfert 1 PMN J0948+0022 in March-July 2009"** , A. A. Abdo , R. Hughes *et al.* [Fermi/LAT Collaboration]. , *Astrophys. J.* **707**, 727 (2009)
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