

**IMRE BARTOS**

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**POSITIONS HELD**

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2017– Assistant Professor, University of Florida  
2016–2017 Associate Research Scientist, Columbia University  
2012–2016 Lecturer in Discipline, Columbia University  
2015 Postdoctoral Research Scientist, Columbia University

**ACADEMIC QUALIFICATIONS**

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2012 Ph.D. astrophysics, Columbia University  
2006 M.S. physics, Eotvos University, Hungary

**MEMBERSHIPS & ACTIVITIES**

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Member, LIGO Scientific Collaboration, 2008–  
Member, IceCube-Gen2 Collaboration, 2014–  
President, New York Hungarian Scientific Society, 2017–, Vice President 2015–2016  
Board of Trustees, Hope Funds for Cancer Research, 2016–  
Member, Hungarian Science Abroad Presidential Committee, 2017–  
Science Research Mentor, American Museum of Natural History, 2016–2017  
Executive Committee, Frontiers of Science, Columbia University, 2013–2016  
Consultant to the Columbia Core Science Committee, 2014–2015

**HONORS & AWARDS**

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2016 Gruber Cosmology Prize (as member of the LIGO Discovery team)  
The 2016 Special Breakthrough Prize in Fundamental Physics (as member of the LIGO team)  
BSA Distinguished Lecture, Brookhaven National Lab, June 2016  
National Science Foundation Highlights, 2014  
Columbia Science Fellow, Columbia University, 2012–2016  
Columbia Presidential Teaching Award, Finalist, 2012  
Rising Stars of Science: The Forbes 30 Under 30 (Forbes Magazine), 2012  
Allan M. Sachs Teaching Award, 2011  
Grand Challenges Explorations Team, Phase 1 (2008) and Phase 2 (2010), B. & M. Gates Foundation

**PROFESSIONAL SERVICE**

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Referee: Nature, PRL, PRX, PRD, ApJ Lett, ApJ, MNRAS, CQG, GRG, Exp. Astron., JCAP.  
Reviewed for: NSF, NASA  
Moderator, arXiv Popular Physics, 2014–  
Co-Organizer, IceCube collaboration meeting, Columbia–Stony Brook, Apr 2016  
Co-Organizer, LSST detection of optical counterparts of gravitational waves, Columbia, May 2017  
Organizer, AAS Winter Meeting Special Session, Multimessenger Astrophysics with LIGO, Jan 2018

Session Chair: AAS 228<sup>th</sup> Meeting, “Relat. Astrophys., Grav. Lenses & Waves, and CMB,” Jun 2016  
Session Chair: GR21 Conference, “Gravitational waves: Searches, data analysis...,” Jul 2016

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#### CURRENT AND PAST FUNDING

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07/01/17–06/30/20, NSF 1740391 Co-PI, “*RAISE: Deep Gravitational Wave Exploration, Instrumental Insights and Noise Removal Through Machine Learning*”  
06/15/14–, NSF 1404462 Co-PI, “*Maximizing the Early-Detection Science of Advanced LIGO*”  
01/01/16–12/31/17, Columbia/University of Glasgow Research Exchange Fellowship Award  
07/14/16, LSST Grant Award 2016, workshop: “*LSST Detection of Optical Counterparts of GWs*”  
07/01/12–06/30/15 Columbia Science Fellowship Research Funding

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#### GRADUATE STUDENTS

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Maria Charisi (now at Caltech)

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#### PUBLICATIONS

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40+ short-author-list publications, including 1 Nature Commun., 4 Phys. Rev. Lett. (2 Editor’s Suggestion), 2 ApJ Lett., and 1 MNRAS Lett. Over 100 LIGO collaboration papers.

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#### PATENTS

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1. *Optical Barrier to Pests*  
S. Marka, Z. Marka, I. Bartos, US20120032096 A1, 2012.
2. *Systems and methods for fraud prevention, supply chain tracking, secure material tracing and...*  
S. Marka, Z. Marka, I. Bartos, US8864038 B2, 2014.
3. *System for Cleansing Organisms from Water*  
S. Marka, I. Bartos, Z. Marka, US20140202961 A1, 2014.

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#### MEDIA

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40. *A new cosmic messenger*  
Feature in PhysicsWorld, Jan 2018
39. *Szent-Gyorgyi Award Ceremony (TV, in Hungarian)*  
ATV, Dec 2017
37. *Spectacular collision of two neutron stars observed for first time*  
Physics World, Oct 2017
36. *Colliding Neutron Star Discovery Could Solve This Mystery About Our Expanding Universe*  
Gizmodo, Oct 2017
35. *Virgo bags its first gravitational waves*  
Physics World, Sep 2017
34. *A New Gravitational Wave Detector Makes Its First Discovery*  
Gizmodo, Sep 2017
33. *Gravitational Waves Reveal the Unexpectedly Weird Behavior of Distant Black Holes*  
Gizmodo, Aug 2017
32. *Infused Antarctic ice could boost neutrino detection*  
Physics World, Jul 2017
31. *Teen Scientists Do Real Science at American Museum of Natural History*  
Black Enterprise, Jul 2017
30. *Urban High School Students Present Original Science Research*  
Diverse: Issues in Higher Education, Jul 2017
29. *Physicists Just Spotted Gravitational Waves Again --- So What's Next?*

- Gizmodo, Jul 2017
28. *Hatalmas eredmény a csillagászatban: újra észlelték az Einstein által megjósolt grav...* (in Hungarian)  
HVG, Jul 2017
  27. *Tartós ablak a világmindenségre - megint észlelték az Einstein-hullámokat* (in Hungarian)  
News (Hungarian National TV), Jul 2017
  26. *No neutrinos from black hole smash*  
Nature Research Highlights, Jul 2016
  25. *Gravitational waves are teaching scientists the 'native language' of black holes*  
Tech Insider, Jun 2016
  24. *More than 1,000 physicists just proved Albert Einstein wrong again*  
Tech Insider, Jun 2016
  23. *A News Flash From Deep Space*  
nycitylens.com, Mar 2016
  22. *Discoverers supporting Einstein's prediction* (in Hungarian)  
HVG Magazine, Feb 2016
  21. *The Future of Gravitational Wave Astronomy*  
Scientific American, Feb 2016
  20. *Gravitational Waves Discovered from Colliding Black Holes*  
Scientific American, Feb 2016
  19. *Einstein's weirdest prediction is true - and will soon radically transform our understanding of the univ.*  
Tech Insider, Feb 2016
  18. *Einstein's wildest prediction could be confirmed within days*  
Tech Insider, Feb 2016
  17. *Interview & Profile* (in Hungarian)  
5 Continents, Duna TV, Dec 2015
  16. *Hunting black holes with a gas cloud*  
National Science Foundation Highlight, 2014
  15. *Monster gas cloud could unveil Milky Way's black-hole hub* (in Hungarian)  
Magyar Nemzet, Mar 2014
  14. *But deliver us from evil* (in Hungarian)  
Magyar Narancs, Nov 2013
  13. *Hungarian physicists hunt for black holes* (in Hungarian)  
Index, June 2013
  12. *Monster gas cloud could unveil Milky Way's black-hole hub*  
Physics World, June 2013
  11. *Researchers suggest gas cloud could reveal black holes near center of Milky Way galaxy*  
phys.org, June 2013
  10. *The search for mini black holes*  
Australian Broadcasting Corporation (ABC), June 2013
  9. *Astronomical gas cloud could finally reveal the truth about black holes at the centre of the galaxy*  
National Post, May 2013
  8. *Black hole bonanza (radio)*  
BBC Science Hour, May 2013
  7. *Black hole bonanza possible as immense gas cloud passes*  
BBC, May 2013
  6. *'FlyWalker' tracks insect feet, could advance Parkinson's research*  
Spoonful of Medicine – Nature Medicine 2013
  5. *Neutrinobite* (in Hungarian)  
Magyar Nemzet Magazine, June 2012
  4. *Rising Stars of Science: The Forbes 30 Under 30*  
Forbes Magazine, Jan. 2012

3. *Using A Light Barrier To Repel Mosquitoes*  
Forbes, 2011
2. *Laser Wall (in Hungarian)*  
Termesztet Vilaga, 2011
1. *The Applied Physicist*  
Interview in Superscript Magazine, 2011

#### INVITED PRESENTATIONS

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66. *Multimessenger Astrophysics in Light of LIGO's Discoveries*  
Invited Seminar, Harvard, October 2017
65. *Search for common sources of gravitational waves and high-energy neutrinos*  
Invited Plenary Talk, MANTS, Marseilles, October 2017
64. *Multimessenger Astrophysics with Advanced LIGO*  
Invited Colloquium, New York University, April 2017
63. *Multimessenger Astrophysics with Gravitational Waves*  
Invited talk, Tsinghua University, Beijing, April 2017
62. *Multimessenger Astrophysics with Gravitational Waves: The road ahead*  
Invited seminar, University of Florida, March 2017
61. *How much will sky localization matter for the Einstein Telescope's multimessenger science goals?*  
Invited plenary talk, 8<sup>th</sup> Einstein Symposium, U. Birmingham, March 2017
60. *LIGO and multi-messenger Astrophysics: The Road Ahead*  
Invited Lecture, Lake Louise Winter Institute, February 2017
59. *Multi-messenger Astrophysics: The Road (and Roadblocks) Ahead*  
Invited Seminar, Harvard University, February 2017
58. *Questions from the Road Ahead for Gravitational wave and Multimessenger Astrophysics*  
Invited Talk, AMON Workshop, Penn State, December 2016
57. *The Discovery of Gravitational Waves from Colliding Black Holes*  
Invited Speech, Chemistry and Physics Teachers Clubs, November 2016
56. *The Discovery of Gravitational Waves from Colliding Black Holes*  
Invited Seminar, Bronx High School of Science, November 2016
55. *LIGO's observation of GWs: Discovery, Near-future Plans and Multimessenger Prospects*  
Invited Colloquium, University of Delaware, October 2016
54. *The Discovery of Gravitational Waves from Colliding Black Holes*  
Science Summer Review Master Class, Columbia, July 2016
53. *Observation of Gravitational Waves: Discovery, Near-future Plans and Multimessenger Prospects*  
Invited talk, Neutrino2016, London, UK, July 2016
52. *LIGO + Neutrinos: First Results and Prospects for Multimessenger Astronomy*  
Invited talk, RICAP 2016, Frascati, Italy, June 2016
51. *Challenges in Time Domain Astroparticle Physics*  
Invited talk, MACROS meeting, Pen State, June 2016
50. *The Discovery of Gravitational Waves from Colliding Black Holes*  
Distinguished Lecture, Brookhaven National Lab, June 2016
49. *We can hear the Universe!*  
Invited speech, Chelsea Music Festival ("Gravity 350"), June 2016
48. *LIGO and The Discovery of Gravitational Waves from Colliding Black Holes*  
Invited Colloquium, Uppsala University, June 2016
47. *The First Detection and Prospects for Multimessenger Astronomy*  
Invited Oscar Klein Colloquium, Stockholm University, June 2016
46. *Big data and gravitational wave data analysis*  
Invited panel discussion, Hope Funds Scientific Convening, Apr 2016

45. *Astronomy Grew Its Ears*  
Invited Master Class for Columbia incoming freshmen, Apr 2016
44. *LIGO discovery*  
Invited Seminar, CUNY-LaGuardia College, Mar 2016
43. *LIGO discovery*  
Invited Seminar, Baruch College, Mar 2016
42. *LIGO discovery*  
Invited Colloquium, Stevens Institute of Technology, Mar 2016
41. *LIGO discovery*  
Invited Colloquium, Brookhaven National Laboratory, Mar 2016
40. *Multimessenger gravitational wave follow-up*  
Invited Seminar, LIGO Workshop, Columbia University, Feb 2016
39. *Advanced LIGO Detectors and New Results*  
Invited Seminar, LIGO Workshop, Columbia University, Feb 2016
38. *LIGO discovery*  
Invited Colloquium, Vanderbilt University, Feb 2016
37. *Multimessenger prospects of LIGO discovery*  
Invited Colloquium, Astronomy, Columbia University, Feb 2016
36. *LIGO discovery*  
Invited Colloquium, Physics, Columbia University, Feb 2016
35. *LIGO discovery*  
Invited Colloquium, New York University, Feb 2016
34. *IceCube: the High-energy Universe and Multimessenger Astrophysics with Neutrinos*  
Invited Colloquium, Eotvos University, Jan 2016
33. *Astronomy's "Next Big Thing:" what we can expect from direct GW observations in the near term?*  
Invited seminar, Princeton, Dec 2015
32. *Astrophysically motivated optimization strategies for multimessenger observations*  
Invited talk, 4<sup>th</sup> AMON Workshop, Penn State, Dec 2015
21. *IceCube: the High-energy Universe and Multimessenger Astrophysics with Neutrinos*  
Invited Colloquium, Brookhaven National Laboratory, Nov 2015
30. *Black holes*  
Invited talk, Westport Astronomical Society, Westport CT, Sep 2015
29. *Fermi and gravitational waves*  
Invited talk, 2<sup>nd</sup> Fermi-LIGO-Virgo Workshop, Caltech, Mar 2015
28. *Multimessenger Astrophysics with Gravitational Waves and High-energy Neutrinos*  
Invited talk, 3<sup>rd</sup> AMON Workshop, Dec 2014
27. *Multimessenger Astrophysics with Advanced LIGO-Virgo*  
Invited talk, 3<sup>rd</sup> AMON Workshop, Dec 2014
26. *Multimessenger Astrophysics 2.0*  
Invited high-energy seminar, Penn State, Nov 2014
25. *High-Energy Neutrinos in the Era of Advanced Gravitational-Wave Detectors*  
Invited talk, JSI Workshop, Annapolis, MD, Nov 2014
24. *Multimessenger astrophysics*  
Invited graduate student seminar, Columbia University, Oct 2014
23. *Black holes*  
Invited seminar, Science Summer Invitational, Columbia University, Jul 2014
22. *Astrophysics with Gravitational Waves*  
Invited seminar, Columbia Graduate Open House, Mar 2014
21. *Multimessenger astrophysics and gravitational waves*  
Invited Graduate Student Seminar, Columbia University, Mar 2014
20. *Black holes*

- Invited seminar; 1st Year Seminar in Contemporary Phys. & Ast., Feb 2014
19. *Multimessenger astrophysics with gravitational waves*  
Invited seminar; Senior Research Seminar, Feb 2014
  18. *Black holes, and what we can learn from them without falling in*  
Invited lecture; New York Hungarian Scientific Society, Oct 2013
  17. *Hide-and-seek: Capturing Gravitational-wave Sources in the Face of Directional Uncertainty*  
Invited talk; AMON Workshop, Penn State, Oct 2013
  16. *Black holes, and what we can learn from them without falling in*  
Invited seminar; Summer Research Program for Science Teachers, Columbia, Aug 2013
  15. *Multi-Messenger Astronomy with Gravitational Waves*  
Invited talk; Joint Space-science Institute Mini Symposium, Goddard, Maryland, May 2013
  14. *What can we learn from multimessenger-gravitational-wave observations?*  
Invited panelist; Gravitational-wave Workshop, South Padre, Texas, May 2013
  12. *Gravitational wave - gamma-ray burst - neutrino connection*  
Invited talk; KIAA Multimessenger Transient Astrophys. Workshop, Beijing, China, May 2013
  11. *Multimessenger astrophysics with gravitational waves*  
Invited presentation; 1<sup>st</sup> year graduate seminar, Columbia University, Apr 2013
  10. *Black holes, cosmic explosions and how we know about them*  
Invited presentation; 1<sup>st</sup> year undergraduate seminar, Columbia University., Feb 2013
  9. *Gravitational Wave and Multimessenger Astrophysics*  
Invited talk; Real-time Astropart. Phys. Workshop, Bonn, Germany, Feb 2013
  7. *Astrophysics & Gravitational Waves*  
Invited talk, 1<sup>st</sup> year undergraduate seminar, Columbia University, Feb 2012
  6. *Joint Searches and Observational Constraints for Multi-Messenger Sources of GWs and HE Neutrinos*  
Invited talk, AMON Inaugural Workshop, Oct 2011
  5. *Observational Constraints on Multi-messenger Sources of GWs and High-energy Neutrinos*  
Invited talk, MANTS (Antares/IceCube) meeting, Uppsala, Sweden, 2011
  4. *Multimessenger astrophysics with gravitational waves*  
Invited talk, Columbia University graduate student orientation, Aug 2011
  3. *Astrophysics with Gravitational Waves*  
Invited talk, SEBS Research Fair, Nov 2010
  2. *Life and Death of Black Holes: the Largest Explosions in the Universe*  
Invited talk, Science Career Day for middle schoolers, Columbia University, 2010
  1. *Results and Challenges in Multimessenger Searches for Gravitational Waves*  
Invited talk, Columbia University, Mar 2010

#### CONTRIBUTED PRESENTATIONS

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29. *Rapid and bright binary black hole mergers in active galactic nuclei*  
Plenary talk, IceCube Collaboration meeting, Berlin, October 2016
28. *Rapid and bright binary black hole mergers in active galactic nuclei*  
Contributed talk, GR21 meeting, New York, July 2016
27. *Rapid and bright binary black hole mergers in active galactic nuclei*  
Contributed talk, AAS 228<sup>th</sup> meeting, San Diego, June 2016
26. *Multimessenger astrophysics with gravitational waves and the LSST*  
talk, CCS16, Brookhaven National Lab, May 2016
25. *Search for neutrinos with LIGO-Virgo's first discovery and beyond*  
Plenary Talk, IceCube Collaboration meeting, Apr 2016
24. *Beyond the horizon distance*  
Contributed Talk, APS April meeting, Apr 2016
23. *Prospects and Planning to Establish the Origin of Cosmic Neutrinos with IceCube-Gen2*

- Contributed Talk, IceCube Collaboration meeting, Apr 2016
22. *Detector Optimization Figures-of-merit for Discovery*  
IceCube Gen2 workshop, Manchester, UK, Aug 2015
  21. *What do we need for the discovery of neutrinos from collisionally heated GRBs?*  
IceCube collaboration meeting, Geneva, Sep 2014
  20. *Update on multimessenger gravitational-wave and high-energy neutrino search*  
LIGO-Virgo meeting, Nice, Mar 2014
  19. *Results from initial LIGO-Virgo and IceCube, and prospects for advanced detectors*  
IceCube collaboration meeting, Banff, Mar 2014
  18. *Detection Prospects for GeV Neutrinos from Collisionally Heated GRBs with IceCube/DeepCore*  
Very Large Volume Neutrino Telescope Workshop, Stockholm, Sweden, Aug 2013
  17. *Gas cloud G2 can Illuminate the Black Hole Population near the Galactic Center*  
Amaldi 10 Conference & 20th Conf. on Gen. Rel. and Gravitation, Warsaw, Poland, Jul 2013
  16. *Gravitational Wave & High Energy Neutrino Multimessenger Searches*  
Marcel Grossmann meeting, Jun 2012
  15. *Gravitational Waves and High Energy Neutrinos*  
LIGO-Virgo Meeting MIT, Mar 2012
  14. *Joint Search for Gravitational Waves and High-energy Neutrinos*  
LVC Meeting Arcadia, 2011
  13. *Scientific Reach and Status of Multimessenger Searches with GWs and High-energy Neutrinos*  
Gravitational-wave Physics and Astronomy Workshop, Milwaukee, WI, 2011
  12. *Update on gravitational wave + high-energy neutrino Multimessenger Analysis*  
LVC meeting, Krakow, Poland, Sep 2010
  11. *Timing verification during S6: photon calibrator measurements and DAQ timing channels*  
LVC meeting, Krakow, Poland, Sep 2010
  10. *Joint Analysis of Gravitational Waves and High Energy Neutrinos*  
From Planets to Galaxies, Eötvös Workshop in Astrophysics, Jun 2010
  9. *Precision, Wide Area, Globally Sync, Timing System for GW, Neutrino and Other Underground Detectors*  
GWADW, Japan, 2010
  8. *Timing Verification Measurements in LIGO S6*  
LVC meeting, Arcadia CA, Mar 2010
  7. *GW-HEN Coincident Data Analysis*  
LVC meeting, Arcadia CA, Mar 2010
  6. *Astrophysically Triggered Searches for Gravitational Waves*  
APS 'April' meeting, Washington DC, Feb 2010
  5. *Calibration Hardware Measurements and New Tools*  
LVC meeting, Sep 2009
  4. *Timing Measurements and Tools*  
LVC meeting, Sep 2009
  3. *Joint Search between Gravitational-wave and High-Energy Neutrino Detectors*  
American Physical Society 'April Meeting', 2009
  2. *Joint Search between Gravitational-wave and High-Energy Neutrino Detectors*  
Gravitational Physics Seminars, Cardiff University, 2009
  1. *Joint Search between Gravitational-wave and High-Energy Neutrino Detectors*  
Workshop on GWs and High Energy Neutrinos, Lab. AstroParticule et Cosmologie, Paris, 2009

## TEACHING

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2018 SPRING	Modern Astrophysics (graduate course)
2017 SPRING	Science Research Mentor, AMNH

2016 FALL	M.A. Science Seminars, Columbia Journalism School; Science Research Mentor, AMNH
2016 SPRING	Frontiers of Science
2015 FALL	M.A. Science Seminars, Columbia Journalism School.
2015 SPRING	Consultant to the Columbia Core Science Committee
2014 FALL	Frontiers of Science
2014 SPRING	Frontiers of Science
2013 FALL	Frontiers of Science
2013 SPRING	Frontiers of Science
2012 FALL	Frontiers of Science
2012 SPRING	Physics for Poets (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2011 FALL	Electromagnetic Waves & Optics (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2011 SPRING	Physics for Poets (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2010 FALL	Electromagnetic Waves & Optics (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2010 SPRING	Columbia University invited talk to undergraduates From Quarks to the Cosmos (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2009 FALL	Electromagnetic Waves and Optics (teaching assistant) Advanced Physics Laboratory (teaching assistant)
2009 SPRING	Advanced Physics Laboratory (teaching assistant)
2008 FALL	Advanced Physics Laboratory (teaching assistant)
2008 SPRING	Advanced Physics Laboratory (teaching assistant)
2007 FALL	Classical and Quantum Waves (teaching assistant) Advanced Physics Laboratory (teaching assistant) General Physics I Laboratory (teaching assistant)
2007 SPRING	General Physics I Laboratory (teaching assistant)
2006 FALL	Classical and Quantum Waves (teaching assistant)