

**David Garofalo**  
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2010-present: Eureka Scientific, scientist I

2010-present: Caltech Postdoctoral Scholar, Jet Propulsion Laboratory

2008-2010: NASA postdoctoral fellow, Jet Propulsion Laboratory,

## **Education**

PhD Physics 2008 University of Maryland, College Park.

Thesis Advisor: Christopher Stephen Reynolds

Dissertation Title: "Magnetic Fields Around Black Holes"

B.S. (Physics and Astronomy, 1998-1999), University of Maryland, July, 1999.

Transferred from University of Bologna, Italy

University of Bologna, Bologna, Italy

Department of Physics

## **Research Area**

- theory of black hole accretion disks
- black hole electrodynamics
- relativistic MHD
- origin, acceleration and collimation, of jets
- cosmological evolution of black hole spin
- radio loud/radio quiet dichotomy
- FR II/FRI division
- cosmological evolution of AGN
- X-ray binary jets and state transitions

## **Honors and awards**

Awarded an Ann G. Wylie Dissertation Fellowship for the 2007-2008 academic year

Physics department teaching award for the academic years 2000/2001, 2001/2002

and 2004/2005

College of Computer, Mathematical and Physical Sciences teaching award 1999/2000

## **Teaching**

Spring 2009:

### **California State University, Northridge**

Department of Physics

Phys 225 - mechanics for physicists and engineers

Spring 2009 - present:

### **Harvey Mudd College**

Department of Physics

Phys 28 - experimental physics laboratory in mechanics

Phys 53 - experimental physics laboratory in electromagnetism and optics

Fall 1999 - fall 2007:

### **University of Maryland College Park**

Department of Physics:

Phys 263 - electricity and magnetism for engineers.

Phys 161 - mechanics for engineers.

Phys 121 - non-calculus based mechanics,  
theory/experiment

Phys 262 - experimental mechanics/thermodynamics for  
engineers.

Phys 117 - mechanics and thermodynamics experiments for  
non-science majors.

Phys 263a - electricity and magnetism experiments for  
engineers.

Phys 141 - mechanics/ thermodynamics, theory/experiment  
for chemistry and biology students.

Phys 272 - experimental physics for physics students.

Department of Astronomy:

Astr 100 - introductory astronomy for non-majors

## Publications in Refereed Journals

1. ***A magnetohydrodynamic model of the M87 jet***, Masanori Nakamura, David L. Meier & David Garofalo, 2010, ApJ submitted
2. ***Misconceptions about general relativity in theoretical black hole astrophysics***, David Garofalo & David L. Meier, 2010, MNRAS in press
3. ***The evolution of radio-loud active galactic nuclei as a function of black hole spin***, David Garofalo, Daniel A. Evans & Rita M. Sambruna, 2010, MNRAS in press
4. ***Spacetime constraints on accreting black holes***, David Garofalo, 2009, Physical Review D, 79, 12
5. ***Signatures of black hole spin in galaxy evolution***, David Garofalo, 2009, ApJ, 699, L52
6. ***The spin dependence of the Blandford-Znajek effect***, David Garofalo, 2009, ApJ, 699, 400
7. ***Trapping of magnetic flux by a black hole accretion disk***, Chris Reynolds, David Garofalo, Mitch Begelman, 2006, ApJ, 651, 1023
8. ***Sporadically torqued accretion disks around black holes***, David Garofalo, Chris Reynolds, 2005, ApJ, 624, 94
9. ***Black hole spin in AGN and GBHC's***, proceedings of “From X-ray Binaries to Quasars: Black Hole Accretion on All Mass Scales”, Chris Reynolds, Laura Brenneman, David Garofalo, 2004

## Research Presentations

1. ***The gap paradigm for the cosmological evolution of active galaxies and quasars***, astrophysics seminar, Jet Propulsion Laboratory, February 2010
2. ***Rotating horizons, accretion disks, and the role of the space in-between in the evolution of active galaxies***, 215<sup>th</sup> meeting American Astronomical Society, Washington DC, January 2010
3. ***A highly warped spacetime paradigm for the cosmological evolution of active galaxies and quasars***, TAPIR seminar, California Institute of Technology, December 2009
4. ***Does the universe know about black hole spin?***, physics colloquium, Harvey Mudd College, November 2009
5. ***Why galaxies know about black hole mass but listen to black hole spin***, astrophysics HEA seminar, Harvard-Smithsonian Center for Astrophysics, October, 2009
6. ***Signatures of black hole spin in the cosmological evolution of galaxies***, 214<sup>th</sup> meeting American Astronomical Society, Pasadena CA, June 2009
7. ***Relativistic aspects of black hole accretion flows***, astrophysics seminar, UC Irvine, April 2009
8. ***Relativistic aspects of black hole accretion flows***, physics colloquium, California State University, Northridge, March 2009
9. ***Relativistic aspects of black hole accretion flows***, 213<sup>th</sup> meeting American Astronomical Society, Long Beach CA, January 2009
10. ***The spin dependence of the Blandford-Znajek effect***, Relativity seminar, Cornell University, October 2008
11. ***Trapping of magnetic flux by a black hole accretion disk***, Physics and Astrophysics of Supermassive Black Holes conference, Santa Fe, NM, July 2006
12. ***Torqued accretion disks***, Constellation "X" meeting, Columbia University, May 2003
13. ***Torqued black hole accretion disks***, high energy seminar, University of

Maryland, College Park, April 2003

## **Media/Press Release**

*Backward black holes might make bigger jets*, JPL/Caltech, June 2010

*Backward black holes control fate of galaxies*, MSNBC, February 12, 2010

*'Backward' black holes spew super-powerful jets*, New Scientist, February 12, 2010

## **Professional Societies**

Member American Astronomical Society

## **Languages**

Native speaker of Italian and English, conversational in Spanish