

RaviKumar Kopparapu

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Education

- December 2006 - Ph.D (Physics), Louisiana State University.

Dissertation Topic : Population Boundaries and Gravitational Wave Templates for Evolving White Dwarf Binaries.

- May 2003 - M.S. in Physics, Louisiana State University
- June 1998 - M.Sc. in Physics, University of Pune, India. Project entitled "Radio emissions from quasars".
- June 1996 - B.Sc. in Electronics, Nagarjuna University, India

Research

- Feb 2005 - Present: LIGO inspiral data analysis group. Compiled a galaxy catalog using Hubble Space Telescope (HST) Key project results, Tully and LEDA galaxy databases. This catalog is being used in the LIGO data analysis as a possible source list for inspiralling gravitational wave sources.
- Dec 2005 - May 2006: Science Monitor for LIGO Science Runs.
- May 2003 - present: Gravitational-wave Astrophysics. Population studies of galactic double white dwarf (DWD) systems and constraints on the space occupied by DWDs in the amplitude-frequency domain of the proposed space-based gravitational-wave detector LISA. Development of a numerical code to generate accurate gravitational wave templates from inspiraling and mass transferring DWDs, considering physical mechanisms that influence the templates such as: mass transfer between the stars and finite size effects (tidal and rotational distortion).
- January 1998 - May 1998: Graduate Student at University of Pune, India. Project title "Radio emissions from Quasars". A Cross correlation method is performed between radio and optical sources to identify a quasar. Various parameters like red shift, absolute magnitude, radio luminosity are studied after the identification. The source for Radio data has been procured from FIRST (Faint Images of the Radio Sky at Twenty centimeters) observations done by Becker, White and Helfand. The data for quasars was obtained from Veron catalog (ESO Scientific Report No.10 1996).
- May 1997 - July 1997: Visiting Student Research Program at National Center for Radio Astrophysics (NCRA-TIFR), India. Project title : Radio emissions from Nearby galaxies. Studied the various types of emission mechanisms (synchrotron radiation, bremsstrahlung), and absorption mechanisms (synchrotron self absorption) that are relevant for normal galaxies.

Teaching

- August 2000 - May 2003: Graduate Teaching Assistant. Taught introductory and advanced undergraduate physics laboratory experiments dealing with mechanics, optics, acoustics. Duties included setting up and teaching the labs, preparing and grading the quizzes, exams and lab reports.

Additional duties consisted of tutoring sessions with undergraduate students at all levels where problem solving methods and skills are developed.

- August 2006 - December 2006: Graduate Teaching Assistant. At present teaching introductory astronomy laboratory with topics on solar systems, night sky observations and CLEA lab experiments. Also wrote laboratory manuals for introductory astronomy experiments.
- Substitute instructor for introductory astronomy course.

Proposals

August 2006 - September 2006: Collaborated with Mossard consulting services as a senior scientist on a NASA SBIR (Small Business Innovation Research) proposal regarding gravitational-wave data analysis of LISA sources using Hilbert-Huang transform.

April 2004: Proposal for Coates scholar research grant sponsored by Charles E. Coates memorial fund, Louisiana State University.

Publications

Ravikumar Kopparapu and Joel E. Tohline, 2006, *Population Boundaries for Galactic White Dwarf Binaries in LISA's Amplitude-Frequency Domain.*, Astrophysical Journal, in press. (astro-ph/0610555.)

Conference proceedings

Ravikumar Kopparapu and Joel E. Tohline, 2006, *Population Boundaries for Galactic White Dwarf Binaries in LISA's Amplitude-Frequency Domain.*, Proceedings of the sixth international LISA symposium to be published by *American Institute of Physics*.

Ravikumar Kopparapu and Joel E. Tohline, 2004, *Generating Accurate Templates for the Plunge Phase of WD-WD Inspirals.*, Online proceedings of the 14th Midwest Relativity Meeting.

Conference Talks and Meetings Attended

- Aug 13-17, 2006 LIGO Scientific Collaboration meeting, Louisiana State University, Baton Rouge.
- Sixth International LISA Symposium, Goddard Space Flight Center, NASA, June 19-23, 2006, Greenbelt, Maryland. Poster presentation titled "Population boundaries for Galactic White Dwarf Binaries in LISA's Amplitude -Frequency Domain".
- Dec 14-17, 2005 Poster presentation at 10th Gravitational Wave Data Analysis Workshop (GWDAW-10) at Center for gravitational wave astronomy, University of Texas, Brownsville, Texas. Title of the poster : Improving efficiency statistics with galaxy binning.
- May 21-22, 2005: Learner-Centered Introductory Astronomy Teaching workshop sponsored by NSF and NASA, New Orleans, Louisiana
- Mar 20-23, 2005 LIGO Scientific Collaboration meeting, LIGO Livingston Observatory.
- Oct 15-16, 2004 : Presented a talk at Midwest Relativity Meeting (MWRM - 14), University of Wisconsin-Milwaukee.
- Dec 14-15, 2003 : Poster presentation at Inaugural meeting of Center for gravitational wave astronomy, University of Texas, Brownsville, Texas.
- May-June, 2002 : Presented a talk at International computational physics course jointly hosted

by Delft University, The Netherlands and LSU.

Awards and Honors

- Louisiana State University, Baton Rouge LA: Graduate Student Fellowship (2000-2004).
- University of Pune, India: National Level Entrance Examination for M.Sc. Scholarship (1996-1998).

Professional Affiliation.

American Astronomical Society (AAS)
American Physical Society (APS)
LIGO Scientific Collaboration (LSC).

Computer Skills

Language and Software: C, FORTRAN 90 & FORTRAN 77, Mathematica, IDL, Matlab, GNUplot, JAVA.

OS experience: Unix (Sun Solaris), RedHat & Fedora Linux, Win98/NT/2000/XP, Microsoft Office.

Research Web Page

<http://www.paris.phys.lsu.edu/~kravi/>