

Ramandeep Gill

Canadian Institute for Theoretical Astrophysics
University of Toronto
60 St. George Street
Toronto, ON M5S 3H8

☎ 647.385.2855
✉ rgill@cita.utoronto.ca
👉 www.cita.utoronto.ca/~rgill

Research Interests

- **GRB and AGN jets:** Spectral modeling of jets, radiative transfer, kinetic simulations, jet geometry and composition, high energy processes
- **Neutron stars:** Magnetar giant flares, population synthesis, cooling of isolated NSs
- **Relativistic plasmas:** Plasma waves, mode coupling to radiation, turbulence, magnetic reconnection
- **Axions:** Constraints on axion properties from polarization measurements and blazar physics

Employment

Canadian Institute for Theoretical Astrophysics 2012 - Present
Topic: *Strongly magnetized relativistic outflows and GRBs*

Education

- **PhD in Astrophysics** 2012
University of British Columbia
Thesis: *Astrophysical Plasmas Near Strongly Magnetized Compact Objects*
Advisor: *Dr. Jeremy Heyl*
- **BSc in Physics and Astronomy (Hons.)** 2007
University of British Columbia
Thesis: *The Birthrate of Magnetars*
Advisor: *Dr. Jeremy Heyl*

Awards

- **NSERC Canada Graduate Scholarship** 2009 - 2012
- **Four Year Fellowship (UBC)** 2009 - 2012
- **Graduate Research Mobility Award (UBC)** 2009
- **Graduate Entrance Scholarship (UBC)** 2007

Refereed Publications

1. Thompson, C. & Gill, R. [Pulse Structure of Hot Electromagnetic Outflows with Embedded Baryons](#), Submitted to ApJ.

-
1. Gill, R. & Thompson, C. [Non-Thermal Gamma-Ray Emission from Delayed Pair-Breakdown in a Magnetized and Photon-Rich Outflow](#), 2014, ApJ, 796, 81
 2. Thompson, C. & Gill, R. [Hot Electromagnetic Outflows. III. Displaced Fireball in a Strong Magnetic Field](#), 2014, ApJ, 791, 30
 3. Gill, R. & Heyl, J. [Statistical Ages and the Cooling Rate of X-Ray Dim Isolated Neutron Stars](#), 2014, MNRAS, 435, 3243
 4. Gill, R. & Heyl, J. [Constraining the Photon-Axion Coupling Constant with Magnetic White Dwarfs](#), 2011, PRD, 84, 085001
 5. Heyl, J., Gill, R. & Hernquist, L. [Cosmic Rays from Pulsars and Magnetars](#), 2010, MNRAS, 406, L25
 6. Gill, R. & Heyl, J. [On the Trigger Mechanisms of Soft Gamma-Repeater Giant Flares](#), 2010, MNRAS, 407, 1926
 7. Gill, R. & Heyl, J. [Dispersion Relations for Bernstein Waves in a Relativistic Plasma](#), 2009, PRE, 80, 036407
 8. Gill, R. & Heyl, J. [The Birthrate of Magnetars](#), 2007, MNRAS, 381, 52

Conferences & Seminars

1. CASCA 2015. McMaster University. Title: *Gamma-ray bursts from strongly magnetized outflows with dissipation from a baryon shell* 2015
2. CITA. Title: *The Spectral States of Black Hole X-Ray Binaries* 2014
3. The Structure and Signals of Neutron Stars: From Birth to Death. Florence. Title: *Statistical Ages and the Cooling Rate of XDINS* 2014
4. CITA. Title: *Models of GRBs* 2014
5. CASCA 2013. Vancouver. Title: *Study of High Energy Processes in Relativistic Plasmas Near Compact Objects* 2013
6. 8th Patras Workshop on Axions, WISPS, WIMPS. Chicago. Title: *Constraints on Axion-Like Particles From Magnetic White Dwarfs* 2012
7. Canadian Workshop on the Nuclear and Astrophysics of Stars. TRIUMF. Title: *Axion Properties from White Dwarf Magnetospheres* 2010
8. Theory Seminar. TRIUMF. Title: *Mystery solved: Cosmic rays from pulsars and magnetars can explain ATIC, H.E.S.S., PAMELA, and Fermi observations* 2010
9. 24th Texas Symposium on Relativistic Astrophysics. Vancouver. Title: *The Birthrate of Magnetars* 2008

Computer Skills

1. Linux/Unix, C, Mathematica, Perl, Fortran90, Gnuplot

Service

1. Referee for Journals: ApJ, Physical Review B, MNRAS
2. Organize the annual CITA jamboree (2013 - 2014)