CURRICULUM VITAE
BRIAN W. MULLIGAN

Brian W. Mulligan
University of Texas at Austin
Department of Astrophysics
1 University Station, C1400
Austin, TX 78712-0259

E-mail: bwmulligan@astro.as.utexas.edu
Cell: (+1) 763-772-3485
Office: (+1) 512-471-0445
Web: `http://www.astro.as.utexas.edu/~bwmulligan`

Education

- University of Minnesota, Twin Cities, Minneapolis, MN, B.S. Physics (2011)
- University of Texas at Austin, Austin, TX, Ph.D. Astrophysics (currently enrolled)

Research Interests

- Computational astrophysics
- Galaxy formation and evolution, especially black hole - galaxy relationships
- Black holes and high energy astrophysics

Research Experience

- University of Texas, Austin, MN
  Advisors: Milos Milosavljevic
  Topics: Modeling of black hole accretion disks using radiation-hydrodynamic simulation in FLASH.

- Metro State University, Saint Paul, MN
  Advisors: Ramin Daghigh, Michael Green
  Topics: Numerical solutions of quasinormal modes of Kerr black holes, particularly in the small angular momentum limit.

- University of Minnesota, Twin Cities
  Advisor: Thomas W. Jones
  Topics: Modeling of Hercules A cluster and periodic jet using magnetohydrodynamic (MHD) total variation diminishing (TVD) scheme.

- University of Minnesota, Twin Cities
  Advisor: Kenneth Heller
  Topics: Development of a cosmic ray telescope using a proportional tube array.

- Mankato State University, Mankato, MN
  Advisor: Jon Hakkila
  Topics: Study of spatal distribution and luminosity function of Barium stars using techniques developed for analysis of gamma ray bursts.

Other Professional Experience

- Senior Software Simulation Engineer, 2000-2011
  Aerosim Technologies, Inc, Burnsville, MN
  Type of work:
  - Numerical simulation of commercial aircraft systems using c++.

Date: March 17, 2012.

- Lead a team of up to 8 software engineers.
- Development and maintenance of graphics libraries.

Teaching Experience

- Teaching Assistant, 2010-2011, AST 2001 - Introduction to Astrophysics, University of Minnesota, Twin Cities
- Lab Instructor (Teaching Assistant), 2010-2011, AST 1001 - Introductory Astronomy, University of Minnesota, Twin Cities
- Teaching Assistant, 2012, AST 353 - Astrophysics, University of Texas at Austin

Refereed Publications

(1) Daghigh, Ramin G.; Green, Michael D.; Mulligan, Brian W. (2010). *Asymptotic Spectrum of Kerr Black Holes in the Small Angular Momentum Limit.* Physical Review D, Vol. 83 Issue 4, id. 044001. DOI: 2011PhRvD..83d4001D.

Presentations

- Mulligan, B. W. ; Daghigh, Ramin; Green, Michael (2008). *Numeric Solutions for the Quasi-normal modes of black holes.* Journal of the Minnesota Academy of Science Vol. 71 Spring 2008 [PDF].
- Myers, J. M.; Mulligan, B. W.; Johnson, M. J.; Hakkila, J.; Meegan, C. A. (1994). *A Statistical Analysis of the Barium Star Spatial Distribution and Luminosity Function: Preliminary Results.* American Astronomical Society, 184th AAS Meeting, #58.06; Bulletin of the American Astronomical Society, Vol. 26, p.954. DOI: 1994AAS...184.5806M

Awards and honors

(1) Offered membership in ΦΚΦ Honor Society, Spring 2012, University of Texas at Austin.
(2) Inducted into National Physics Honor Society (ΣΠΣ), Spring 2011, University of Minnesota, Twin Cities.
(3) Addison Wesley Book Award in Mathematics, Spring 2007, Normandale Community College.
(4) Inducted into ΦΘΚ Honor Society, Spring 2007, Normandale Community College.
(5) Outstanding Physics Student, Spring 1993, Green Bay West High School.

Skills and qualifications

- Numerical processing
- Simulation and modeling of complex systems
- Radiation-hydrodynamics

Programming languages and APIs

- c (expert)
- c++ (expert)
- FORTRAN (intermediate)
- LaTeX(intermediate)
- root (beginner)
- Mathematica (beginner)
- OpenGL (intermediate)
- MPI (beginner)
- OpenMP (beginner)

References

Available upon request