

Brian W. Mulligan

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Current position

Graduate Student & Teaching Assistant, University of Texas at Austin,
Austin, TX

Areas of specialization

High Performance Computing - Computer Graphics - Simulations - Video Games
- Educational Software

Education

2011
2016

B.S. in Physics; University of Minnesota, Twin Cities

PH.D. in Astrophysics (High velocity features in Type Ia supernovae via interaction with a compact circumstellar shell); University of Texas at Austin (Expected)

Technical Skills

Languages

c++ (Advanced), c (Expert), FORTRAN (Intermediate), Python (Beginner), XML (Intermediate), Postscript (Intermediate), x86 Assembly (Intermediate), and others

APIs

openGL (Advanced), MPI (Intermediate), OpenMP (Intermediate), yaml-cpp (Intermediate), jsoncpp (Intermediate), xml

Software & Applications

git (Intermediate), Microsoft Visual Studio (Intermediate)

Industry Experience

2002-2011	Senior Software Engineer & Technical Team Lead ; Aerosim Technologies; Burnsville, MN
2001-2002	Senior Software Engineer ; Aerosim Technologies; Burnsville, MN
1999-2001	Software Engineer ; Aerosim Technologies; Burnsville, MN
1998-1999	Programmer / Analyst ; Vincent Metal Goods; Coon Rapids, MN

Other Experience

2012-2016	Teaching Assistant ; University of Texas at Austin; Austin, TX
2010-2011	Teaching Assistant ; University of Minnesota, Twin Cities; Minneapolis, MN

Research

Journal articles

2017	Mulligan, B. W., & Wheeler, J. C. (2017); “ A Compact Circumstellar Shell as the Source of High-Velocity Features in SN 2011fe ”; In Preparation
2016	Mulligan, B. W., & Wheeler, J. C. (2016); “ Deriving abundances from early supernova spectra ”; In Preparation
2016	Mulligan, B. W., & Wheeler, J. C. (2016); “ High-Velocity Features in Type Ia Supernovae from a Compact Circumstellar Shell ”; <i>Monthly Notices of the Royal Astronomical Society</i> , Accepted
2015	Silverman, J. M., Vinkó, J., Marion, G. H., Wheeler, J. C., Barna, B., Szalai, T., Mulligan, B. W., Filippenko, A. V., (2015); “ High-velocity features of calcium and silicon in the spectra of Type Ia supernovae ”; <i>Monthly Notices of the Royal Astronomical Society</i> , Vol 451, Issue 2
	Mulligan, B. W., & Wheeler, J. C. (2015); “ A Compact Circumstellar Shell as the Source of High-velocity Features in SN 2011fe ”; <i>arXiv</i> , 1505.05145
2011	Daghighi, Ramin G., Green, Michael D., Mulligan, Brian W. (2011); “ Asymptotic spectrum of Kerr black holes in the small angular momentum limit ”; <i>Physical Review D</i> , Vol. 83, Iss. 4

Posters

- 2015 Mulligan, B. W., & Wheeler, J. C. (2015); **“High velocity features in Type Ia supernovae via interaction with circumstellar shell”**; American Astronomical Society 225th Meeting
- 2015 Silverman, J. M., Vinkó, J., Marion, G. H., Wheeler, J. C., Mulligan, B. W., Filippenko, A. V., (2015); **“High-Velocity Features in the Spectra of Type-Ia Supernovae”**; American Astronomical Society 225th Meeting
- 2014 Mulligan, B. W., & Wheeler, J. C. (2015); **“High velocity lines due to interaction between Type Ia supernova ejecta and a circumstellar shell: 1-D simulations”**; American Astronomical Society 223rd Meeting
- 1993 Myers, J. M.; Mulligan, B. W.; Johnson, M. J.; Hakkila, J.; Meegan, C. A.; **“A Statistical Analysis of the Barium Star Spatial Distribution and Luminosity Function: Preliminary Results”**; American Astronomical Society 184th Meeting

Public Research Talks

- 2016 **“Deriving abundances from early supernova spectra”**; Astronomy Department Theory Seminar; University of Texas at Austin; 25 Oct 2016
- 2015 **“Type Ia supernovae, circumstellar shells, and high velocity lines: 1-D simulation”**, Astronomy Department Theory Seminar; University of Texas at Austin; 13 Apr 2015
- 2014 **“Type Ia supernovae, circumstellar shells, and high velocity lines: 1-D simulation”**, Astronomy Department Theory Seminar; University of Texas at Austin; 6 Oct 2014

Public Popular Talks

- 2016 **“Astronomy in the News”**; Astronomy On Tap ATX; North Door; Austin, TX; 18 Oct 2016
- 2016 **“Searching for the rest of the Universe: Dark Matter”**; Astronomy on Tap ATX; North Door; Austin, TX; 20 Sept 2016
- 2016 **“Astronomy in the News”**; Astronomy On Tap ATX; North Door; Austin, TX; 20 Sept 2016
- 2016 **“Astronomy in the News”**; Astronomy On Tap ATX; North Door; Austin, TX; 16 Aug 2016
- 2016 **“Astronomy in the News”**; Astronomy On Tap ATX; North Door; Austin, TX; 19 July 2016
- 2016 **“Astronomy in the News”**; Astronomy On Tap ATX; North Door; Austin, TX; 17 May 2016
- 2016 **“Why does my code take a week to run? Optimizing and profiling your code”**; Grad Student/Post-Doc Seminar; UT-Austin; Austin, TX; 4 Mar 2016

- 2013 **“Time, Calendars, and the Stars: A little history of time and calendars”**; Monthly Meeting; UT Austin Astronomy Students Association; Austin, TX; 13 Nov 2013
- 2013 **“Weighing galaxies and finding dark matter”**; Star Party; Westgate Outdoor Discovery Center; Round Mountain, TX; 28 Sept 2013
- 2013 **“Time, Calendars, and the Stars: A little history of time and calendars”**; Star Party; Westgate Outdoor Discovery Center; Round Mountain, TX; 28 Sept 2013