

Benjamin Brown

Biographical Sketch

Department of Astrophysical and Planetary Sciences
University of Colorado, Boulder
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Professional Preparation

Harvey Mudd College	Physics	BS May 2003
University of Colorado, Boulder	Astrophysics	PhD August 2009
University of Wisconsin, Madison	Astronomy	Postdoc September 2009 – August 2013
University of California, Santa Barbara	KITP	Postdoc September 2013 – July 2014

Appointments

Assistant Professor	University of Colorado, Boulder	August 2014 –
Research Associate	Kavli Institute for Theoretical Physics	September 2013 – July 2014
Postdoctoral Fellow	University of Wisconsin, Madison	September 2009 – August 2013
NSF AAPPF	University of Wisconsin, Madison	September 2009 – August 2013

Five Publications Most Relevant to Proposed Work (out of 24 total)

- Lecoanet, D., **Brown**, B. P., Zweibel, E. G., Burns, K., Oishi, J. S., & Vasil, G. M., “Conduction in low-Mach number flows: part I linear & weakly nonlinear regimes”, 2014, *The Astrophysical Journal*, 797, 94:1–16
- Vasil, G. M., Lecoanet, D., **Brown**, B. P., Wood, T. S., & Zweibel, E. G., “Energy conservation and gravity waves in sound-proof treatments of stellar interiors: Part II Lagrangian constrained analysis”, 2013, *The Astrophysical Journal* 773, 169:1–23
- **Brown**, B. P., Vasil, G. M., & Zweibel, E. G., “Energy conservation and gravity waves in sound-proof treatments of stellar interiors: Part I anelastic approximations”, 2012, *The Astrophysical Journal* 756, 109:1–20
- **Brown**, B. P., Miesch, M. S., Browning, M. K., Brun, A. S., & Toomre, J., “Magnetic cycles in a convective dynamo simulation of a young solar-type star”, 2011, *The Astrophysical Journal*, 731, 69:1–19
- **Brown**, B. P., Browning, M. K., Brun, A. S., Miesch, M. S., & Toomre, J., “Persistent magnetic wreaths in a rapidly rotating sun”, 2010, *The Astrophysical Journal*, 711, 424–438

Synergistic activities

Brown has been involved in modelling stellar convection since 2003, when he began using the anelastic spherical harmonic (ASH) code to study the coupling of convection, rotation and magnetic dynamo action in the Sun and in other solar-type stars. He has published results on magnetohydrodynamic processes in stellar interiors and has extensive experience with fluid dynamics in stratified atmospheres appropriate to stellar interiors. He is a member of the closed-source ASH code development team, and is a member of the development team for the open-source Dedalus framework. Brown has served as a mentor for four undergraduate students while at University of Wisconsin, Madison, designing and managing research projects that ranged between 3 months and 1 year in length, and in one case lead to a successful undergraduate thesis.