

**Romeel Davé**

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**Current Status**     Assistant Professor of Astronomy, University of Arizona

**Education**         Ph.D. Astronomy, University of California, Santa Cruz, June 1998.  
M.S. Physics, California Institute of Technology, June 1991.  
A.B. Physics with Honors, University of California, Berkeley, May 1989.

**Prior Positions**

*Nov 00* → *Nov 03*     Hubble Postdoctoral Fellow, Steward Observatory.  
*Oct 98* → *Oct 00*     Lyman J. Spitzer Postdoctoral Fellow, Princeton University.

**Teaching**

*Spring 07*             Instructor, Cosmology (graduate).  
*Fall 06*                Instructor, Galaxies (graduate).  
*Fall 05,06*            Instructor, Introduction to Cosmology (non-majors), Arizona.  
*Spring 04,05*         Instructor, Computational Physics (majors), Arizona.

**Selected Publications**

- *Enrichment and Pre-Heating in Intragroup Gas from Galactic Outflows*, Davé, R., Oppenheimer, B. D., Sivanandam, S. 2008, MNRAS, submitted
- *The galaxy stellar mass-star formation rate relation: Evidence for an evolving stellar initial mass function?* Davé, R. 2008, MNRAS, accepted
- *The Enrichment History of Baryons in the Universe*, Davé, R. & Oppenheimer, B. D. 2006, MNRAS, 374, 427
- *The Physical Properties and Detectability of Reionization-Epoch Galaxies*, Davé, R., Finlator, K., & Oppenheimer, B. D. 2006, MNRAS, 370, 273
- *X-Ray Scaling Relations of Galaxy Groups in a Hydrodynamic Cosmological Simulation*, Davé, R., Katz, N., & Weinberg, D. H. 2002, ApJ, 579, 23
- *The Statistical and Physical Properties of the Low Redshift Lyman Alpha Forest Observed with HST/STIS*, Davé, R. & Tripp, T. M. 2001, ApJ, 553, 528.
- *Baryons in the Warm-Hot Intergalactic Medium*, Davé, R., et al. 2001, ApJ, 552, 473.
- *Halo Properties in Cosmological Simulations of Self-Interacting Cold Dark Matter*, Davé, R., Spergel, D. N., Steinhardt, P. J., & Wandelt, B. D. 2000, ApJ, 547, 574.

- *The Low Redshift Lyman-alpha Forest in Cold Dark Matter Cosmologies*, Davé, R., Hernquist, L., Katz, N., & Weinberg, D. H. 1999, ApJ, 511, 521.

### **Statement of Research**

Dr. Davé is an expert on numerical models of the formation and evolution of galaxies and the intergalactic medium. His current work centers on understanding large-scale feedback processes using state-of-the-art hydrodynamical simulations. He is particularly interested in cosmic chemical evolution and the self-regulation of star formation processes via galactic outflows. He is involved in close comparisons to a wide range of observations spanning from primeval galaxies in the reionization epoch to galaxy clusters today, and using such comparisons to constrain models and provide new physical insights into the processes governing galaxies and intergalactic gas.

### **Selected Talks**

- Review, IAU 216: Maps of the Cosmos (7/03), “Simulations of the IGM”.
- Review, KITP: Galaxy/IGM Connection (10/04), “The Warm-Hot Intergalactic Medium”.
- Review, Ringberg: Multi-Wavelength Surveys (3/05), “Galaxy Formation Simulations”.
- Review, Marseilles: Fabulous Destiny of Galaxies (6/05), “Building Galaxies With Sims”.
- Review, Santa Fe Cosmology Workshop (7/05), “Formation and Evolution of Galaxies”.
- Review, Massive Galaxies II (11/06), “Massive Galaxy Growth at High Redshift”.
- Public talk, Arizona Evening Lecture (11/03), “Simulations of Galaxy Formation”.
- Public talk, Sierra Vista Astronomy Club (2/04), “Simulating the Universe”.
- Public talk, Cleveland Museum of Natural History (11/07), “Numerical Cosmology”.

### **Current Thesis Students**

- Benjamin D. Oppenheimer (graduate), graduating 8/08.
- Kristian Finlator (graduate), graduating 5/09.
- David Hernandez (undergraduate), graduating 5/08.