

University of Rochester

Summer 2010 undergraduate research in Physics, Optics, and Astronomy

(Including a partial list of Journal articles and Conference Proceedings co-authored by the REU students, updated Dec. 17, 2011)

1. Steven Bandes, class of '12 at the University of Rochester, worked with Prof. Yonathan Shapir using mean first passage time methods to study diffusion on a random one-dimensional lattice with quenched asymmetric persistence probabilities.

1. Anomalous diffusion of random walkers on a disordered lattice with quenched persistence (RSPS 2011) Steven Bandes and Professor Yonathan Shapir University of Rochester

2. Matthew Bourque, class of '11 at Florida Institute of Technology, worked with Prof. Eric Mamajek and Dr. Eric Bubar in measuring the equivalent widths of absorption lines in high resolution stellar spectra of low mass F, G, and K stars in the nearest star forming complex (Scorpius-Centaurus) in order to derive their metallicities. He plans on applying to graduate school in physics.()

1. E.J. Bubar, M.J. Pecaut, E.E. Mamajek, **M. Bourque** and M.R. Meyer, "Spectroscopic and Photometric Parameter Effects in Young Stars: Sco-Cen", *Astrophysical J.*, p. , vol. , (2011). in preparation,

3. Greg Bentsen, class of '11 at the University of Rochester, worked with Prof. Sarada Rajeev on the single-impurity Anderson model for the spin-screening of magnetic impurities in a metal, as a toy model for non-perturbative renormalization in gauge theories. He plans to apply to graduate school in theoretical physics.

1. The Kondo Problem: A Toy Model for Renormalization (RSPS 2011) Gregory Bentsen and Sarada Rajeev University of Rochester

4. David Brown, class of '12 at University of Rochester, worked with Prof. James Zavislan. He designed, built, and calibrated a clinical instrument that will aid in understanding the lipid layer of the tear film, and its influence on Dry Eye Syndrome. He plans on graduate school for biomedical engineering.

5. Harry Chung, class of '11 at Bates College, worked with Dr. Howard Budd on electronics and the detector for test beam, a miniature version of the MINERvA project at Fermilab, to understand and monitor their behaviors with respect to various experimental conditions. He plans on applying to graduate school in physics/astrophysics.

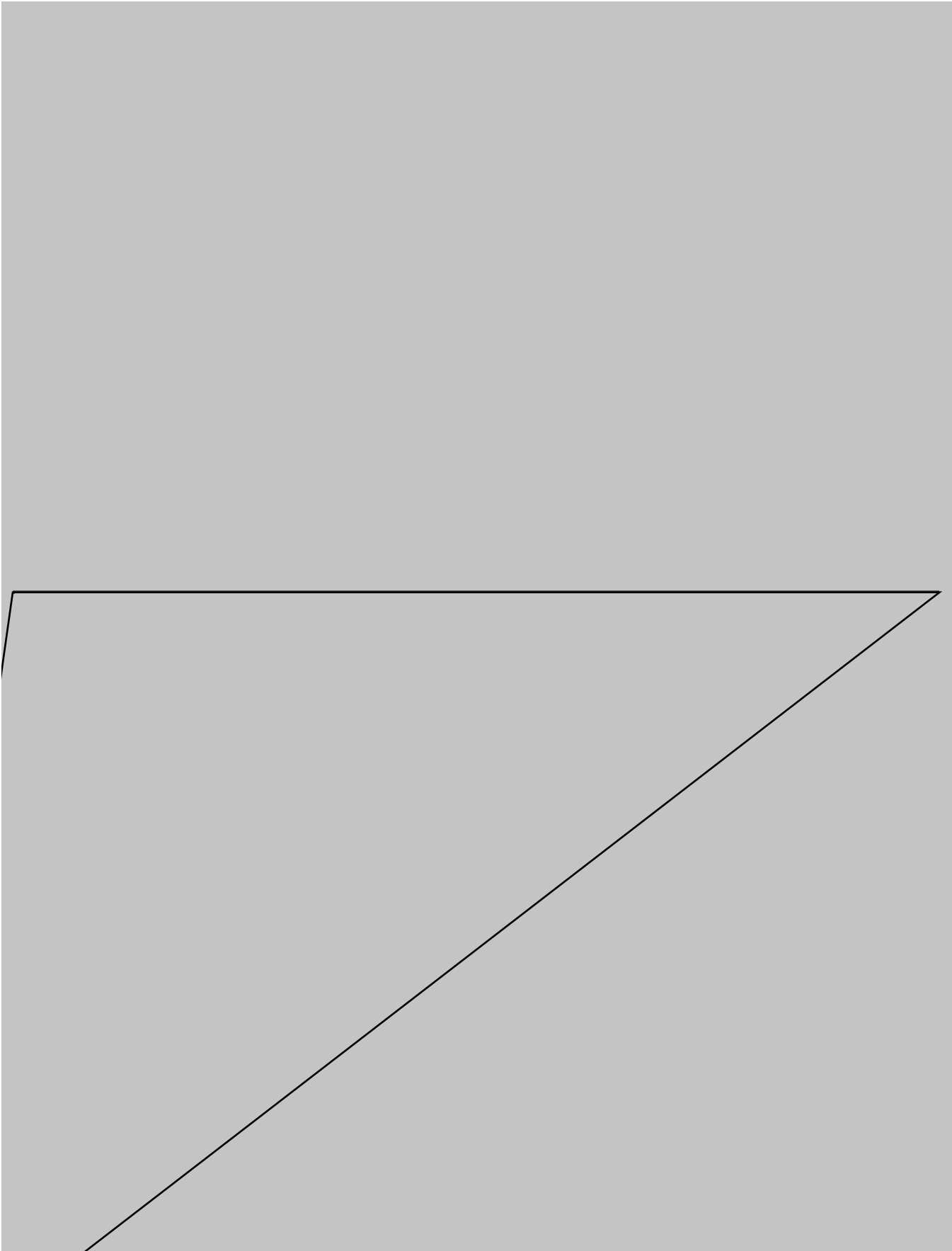
6. Daniel deLahunta, class of

7. Miles Dotson, class of '11 at the University of Miami, FL, worked with Prof. Mark Bocko on programmed manipulation of the modes of drum membranes for tone creation, implemented through a musical expression application for the mobile iOS 4 software for the iPhone and iPad. He plans on applying to graduate school in electrical/computer engineering.

8. Jamie Dougherty, class of '11 at the University of Rochester, worked with Prof. Alice Quillen analyzing the spiral structure evolution and resonance patterns found in a galactic simulation. She plans to apply for research positions or jobs related to astronomy or physics upon graduation.

1. [2011MNRAS.417..762Q](#) , [Quillen, Alice C.](#)

13. Dan Gresh, class of '11 at the University of Rochester, designed and implemented a timing control



1. [2011arXiv1110.4172L](#) Lisse, C. M.; Wyatt, M. C.; Chen, C. H.; Morlok, A.; Watson, D. M.; Manoj, P.; Sheehan, P.; Currie, T. M.; Thebault, P.; Sitko, M. L.
Spitzer Evidence for a Late Heavy Bombardment and the Formation of Urelites in {eta} Corvi at ~1 Gyr

2. [2011arXiv1107.3261A](#) Arnold, L. A.; Watson, Dan M.; Kim, K. H.; Manoj, P.; Remming, I.; Sheehan, P.; Adame, L.; Forrest, W.; Furlan, E.; Mamajek, E.; and 4
A Spitzer IRS Survey of NGC 1333: Insights into disk evolution from a very young cluster

3 [2011LPI....42.2438L](#) Lisse, C. M.; Chen, C. H.; Wyatt, M. C.; Morlok, A.; Thebault, P.; Bryden, G.; Watson, D. M.; Manoj, P.; Sheehan, P.; Sloan, G.; Currie, T. M. Spitzer Observations of Corvi: Evidence at ~1 Gyr for an LHB-Like Delivery of Organics and Water-Rich Material to the THZ of a Sun-Like Star

4 [2009ApJ...701.1367C](#) Chen, Christine H.; Sheehan, Patrick; Watson, Dan M.; Manoj, P.; Najita, Joan R, Solar System Analogs Around IRAS-Discovered Debris Disks, The Astrophysical Journal, Volume 701, Issue 2, pp. 1367-1372 (2009).

5 . **Accretion Processes in Class 0/I Protostars** (RSPS 2011) P.D. Sheehan, P. Manoj, and D.M. Watson University of Rochester

6. C.M. Lisse, C.H. Chen, M.C. Wyatt, A. Morlok, I. Song, G. Bryden and P. Sheehan,

1. Amy Van Newkirk, presentation at the Frontiers in Optics 2010/Laser Science XXVI and the 2010 Industrial Physics Forum) in Rochester, NY in October 2010

4. Amy Van Newkirk, presentation of a poster the March Meeting of the American Physical Society in Dallas, Texas (2011) titled: “Designing an optical dipole trap for the creation of Bose-Einstein condensates”.

5. Amy Van Newkirk, Abstract, published in Bulletin of March Meeting of the American Physical Society in Dallas, Texas (2011) “Designing an optical dipole trap for the creation of Bose-Einstein condensates”.
