Eliot Halley Vrijmoet

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Education

Georgia State University, Atlanta, GA 2016-present
Ph.D. Astronomy (expected May 2021)
Thesis title: *Masses of M Dwarf Binary Stars*
Thesis advisor: Dr. Todd J. Henry

San Diego State University, San Diego, CA 2014-2016
M.S. Astronomy
Thesis title: *Statistics of Triple Star Systems in the Kepler Field*
Thesis advisor: Dr. Jerome Orosz

Reed College, Portland, OR 2009-2013
B.A. Physics
Thesis title: *Numerically Levitating Objects with Rockets*
Thesis advisor: Dr. Joel Franklin

Research Experience

Georgia State University Department of Physics and Astronomy

Fall 2017 - present

Masses of M dwarf stars using astrometric techniques
Advisor: Dr. Todd J. Henry

Using astrometric techniques to find the masses of M dwarf stars to refine the mass-luminosity relation for these objects. Targets have been observed since 1999 as part of the CTIOPI program. This project involves reducing the astrometry data for each object, identifying potential binary systems, fitting orbits to each binary's motion, and resolving each system to get masses of the individual components.

San Diego State University Department of Astronomy

Possible three-body systems in the Kepler Catalog Summer 2015 - Summer 2016
Advisor: Dr. Jerome Orosz

Examination of eclipsing binary systems whose deviations in observed and computed eclipse times indicate the possible presence of a third (non-transiting) body. Tasks involve:

- Developing of software tools to facilitate obtaining and detrending raw *Kepler* data.
- Utilizing ELC, an existing multiple-body-system modeling Fortran code, to model each eclipsing binary system.
- Introducing general relativistic and tidal effects to each system to attempt to replicate the deviations in eclipse times.
- Estimating parameters of the potential third body if the eclipse time deviations cannot be matched.

False Positive eclipsing binary signals in the Kepler Catalog Spring 2015
Advisor: Dr. William Welsh

Identification or verification of sources of variable signals in the *Kepler* field. "False positive" eclipsing binaries were those signals identified as contaminated or diluted from nearby light sources or instrumental artifacts, or those that were discovered to be other sources' light misidentified as a *Kepler* target.

Identification of orbital periods of Kepler eclipsing binary systems Fall 2014
Advisor: Dr. Jerome Orosz

Identification and verification of eclipsing binary systems' orbital period using MATLAB tools to examine and measure the light curve of each system.

Publications

Bentz, M. C., Abbott, C., Agudelo, S., Dassing, S., Flynn, W., Gibbs, A., Gonzalez, L., Kim, B., Paredes, L., Toben, C., **Vrijmoet, E. H.**, Yep, A. 2018, *Filtered Monitoring of 1591 Baize*, submitted

Henry, T. J., Jao, W-C, Winters, J. G. W., Dieterich, S. B., Finch, C. T., Ianna, P. A., Riedel, A. R., Silverstein, M. L., Subasavage, J. P., **Vrijmoet, E. H.** 2018, *The Solar Neighborhood XLIV: RECONS Discoveries within 10 Parsecs*, submitted

Kirk, B., Conroy, K., Prša, A., Abdul-Masih, M., Kochoska, A., Matijevič, G., Hambleton, K., Barclay, T., Bloemen, S., Boyajian, T., Doyle, L. R., Fulton, B. J., Hoekstra, A. J., Jek, K., Kane, S. R., Kostov, V., Latham, D., Mazeh, T., Orosz, J. A., Pepper, J., Quarles, B., Ragozzine, D., Shporer, A., Southworth, J., Stassun, K., Tompson, S. E., Welsh, W. F., Agol, E., Derekas, A., Devor, J., Fischer, D., Green, G., Gropp, J., Jacobs, T., Johnston, C., LaCourse, D. M., Saetre, K., Schwengeler, H., Toczyski, J., Werner, G., Garrett, M., Gore, J., Martinez, A. O., Spitzer, I., Stevick, J., Thomadis, P. C., **Vrijmoet, E. H.**, Yenawine, M., Batalha, N., Borucki, W. 2016, *Kepler Eclipsing Binary Stars. VII. The Catalog of Eclipsing Binaries Found in the Entire Kepler Data Set*, AJ, 151, 68

Teaching Experience

Georgia State University

Teaching Assistant, Astronomy 1020 (Lab) — Fall 2016, Fall 2017
Stellar and Extragalactic Astronomy

Teaching Assistant, Astronomy 1010 (Lab) — Spring 2017, Summer 2017, Spring 2017
Solar System Astronomy and Planetary Sciences

Presenting and guiding activities for an introductory laboratory class. Additional activities include grading student lab work, organizing and leading group student observing sessions in downtown Atlanta, and presenting public observing nights at GSU's Hard Labor Creek Observavtory.

San Diego State University

Teaching Associate, Astronomy 109 (Lab) — Spring 2015, Fall 2015, Spring 2016

Developing, presenting, and guiding lectures and activities for an introductory astronomy laboratory class for undergraduates. Additional duties include grading student lab exercises, holding office hours for individual instruction, and supervising instructional field trips to SDSU's Mount Laguna Observatory. Topics covered include the celestial coordinate system, Kepler's laws, galaxy morphology, dark matter, variable stars, and exoplanets.

Professional Experience

Extanto Technology
Quality Assurance and *Subject Matter Expert*
for Astronomy, Physics, and Chemistry December 2013 - November 2015
for Math December 2011 - March 2012

Verifying and maintaining accuracy and functionality of digitized textbooks and related online learning tools. Tasks included checking written problems for accuracy and consistency with the source material; verifying functionality of software tools; filing concise, descriptive reports of each error found; and updating old reports to indicate if errors have been fixed or need additional attention.

Volunteer Experience

University of Oregon Department of Computer and Information Science June 2007 - August 2007 (396 hours total)

Assisting with debugging and writing of the Haptic Soundscape Map of the University of Oregon