

Maria Steinrueck

Lunar and Planetary Laboratory
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Education

University of Arizona, Tucson, AZ 2016-present
PhD program in Planetary Sciences

Vienna University of Technology, Vienna, Austria 2010-2015
M.S. in Technical Physics, specializing in Theoretical Physics. Graduated with distinction in November 2015.
B.S. in Technical Physics. Graduated with distinction in August 2013.

University of Washington, Seattle, WA 2013-2014
Transatlantic Science Student Exchange Program – Study Abroad (full academic year)

Research Experience

Graduate Research Assistant 2016-present
Lunar and Planetary Laboratory, University of Arizona
Advisor: Adam Showman
Understanding the impact of including disequilibrium chemistry in General Circulation Models (GCM) of Hot Jupiters

Master's Thesis 2015
Institute for Astrophysics, University of Vienna
Advisors: Dr. Eduard Vorobyov, Prof. Manuel Guedel
Thesis title: “Ejection of substellar objects from accretion disks through stellar encounters”

- Coded an extension to include the fly-by of a second star for a hydrodynamics code used to study the evolution of protostellar disks
- Ran and analyzed a series of numerical simulations of stellar encounters

Research Project on Extrasolar Planets 2013-2014, 9 months
Astronomy Department, University of Washington
Advisors: Dr. Ian Dobbs-Dixon, Prof. Eric Agol
Estimating the stratospheric heating in Hot Jupiters due to the interaction of winds with the stellar magnetic field

- Discretized the induction equation on a spherical grid
- Developed and coded a model for calculating conductivity

Bachelor's Thesis in Experimental High Energy Physics 2012, 10 weeks
Institute of High Energy Physics (HEPHY), Austrian Academy of Sciences
Advisors: Dr. Wolfgang Waltenberger, Dr. Claudia-Elisabeth Wulz
Thesis title: “Decomposition of the phenomenological MSSM into Simplified Model Spectra”

- Analyzed and compared the decomposition of two samples of subsets of phase space points in the phenomenological MSSM (pMSSM) into Simplified Model Spectra using ROOT and Python
- Added improvements to tools for analyzing pMSSM points in Python

Teaching & Mentoring Experience

Institute for Theoretical Physics, Vienna University of Technology 2011-2014
Teaching assistant for the following courses:

- Quantum Mechanics 1 (Fall semester 2014 and 2012)
- Electrodynamics 1 (Spring semester 2013)
- Mathematical Methods of Theoretical Physics (Fall semester 2011)

Pupils Attending University 2012-2015

Program enabling high school students to enroll early at university, run by the Austrian Research and Support Centre for the Gifted and Talented (OEZBF)

Mentored four students over the course of a year each

Awards

Leistungsstipendium (Academic Merit Award) of the Vienna University of Technology 2012

Outreach**Lunar and Planetary Lab, University of Arizona**

Volunteered at the graduate student outreach booth at

- Tucson Festival of Books (March 2016)
- STEAMworks (April 2016)
- SpaceFest (June 2016)

Physikmobil, Vienna 2012-2013

Physics outreach campaign

Explained physics interactively to children (ages 6 -14) with experiments using everyday life objects at schools, in public parks and at events

Departmental Service

Member of the Lunar and Planetary Lab Conference (LPLC) planning committee (2016)