

Nahks Tr'Ehnl

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OBJECTIVE

To advance the cause of human space exploration by bolstering public understanding, support, and excitement for the sciences through teaching, outreach, writing, and art.

EDUCATION

The Pennsylvania State University, University Park, Pennsylvania

BA in Art with Japanese language minor, May 2001

BS in Astronomy and Astrophysics, May 2003

RESEARCH INTERESTS

Science communication:

Constructing visualizations from data, and speculative “space art”; explaining the tools and methods of science and reporting discoveries in manners meaningful and exciting to the public

Astrobiology:

Habitable planets; biological evolution, phylogenetics, and extremophiles; cosmochemistry and evolution of habitable environments in a galactic and cosmological perspective

Astronomy / Astrophysics:

Extrasolar planet detection, characterization; planetary system evolution

Geological / Planetary Sciences:

Earth system science, human impact; paleontology and mass extinction events

TEACHING INTERESTS

Interactive Multimedia in Education and Public Outreach:

Using web-based/interactive technologies to engage learners; educational game development; laboratory-style investigations to reinforce education in the philosophies and methods of science

Art:

Science-informed art (visual, performance, *etc.*) as teaching and learning tools

RESEARCH EXPERIENCE

Arizona State University, School of Earth and Space Exploration Fall 2007 – Summer 2011

Model star evolution and supernovae calculations over a grid of high-mass stars (8-120 solar masses) using the "Saguaro" cluster at ASU's High Performance Computing Initiative

Completed graduate-level coursework in stellar physics, galaxy dynamics, planetary geology, cosmochemistry, paleontology, and earth-system/sustainability sciences.

The Pennsylvania State University, Department of Geosciences Summer 2003

Research into and computer modeling of early Earth atmospheres

TEACHING EXPERIENCE

Graduate Teaching Assistant, School of Earth and Space Exploration, Fall 2007 – Fall 2011
Arizona State University, Tempe, Arizona

Geologic Disasters Laboratory (GLG 111): non-major laboratory course on geological disasters and hazards (1 section)

Earth, Solar System, and Universe I-II (SES 101, 102): two-semester introductory major course in astronomy and geology (1 section of each)

Earth, Solar System, and Universe Labs I-II (SES 103, 104): astronomy-related labs to accompanying SES 101 and 103 lectures (1 section of each)

Introduction to Stellar and Planetary Astrophysics (AST 321): tutoring outside of lecture classes (1 section)

Teaching Assistant, Department of Astronomy and Astrophysics, Fall 2006 – Spring 2007
The Pennsylvania State University, University Park, Pennsylvania

Astronomical Universe (ASTRO 001; web section): web design, illustration, and story/lesson writing for an online multimedia non-major introductory astronomy course (with J. Charlton, C. Palma, K. Herrmann, A. Narayanan)

Elementary Astronomy Laboratory (ASTRO 11): non-major introductory astronomy laboratory involving planetarium shows and telescope observations (1 section)

CONFERENCE / WORKSHOP PRESENTATIONS

- N. Tr'Ehnl**, F. X. Timmes, M. Turnbull, P. A. Young, and S. Schmidt (2010). Constructing an Updated Catalog of Nearby Habitable Stellar Systems with Elemental Ratios; poster presented at the 2010 Astrobiology Science Conference, League City, TX, 26-29 April 2010.
- P. A. Young, F. X. Timmes, and **N. Tr'Ehnl** (2010). The Turbulent Origin of the Elements: Dynamical/Chemical Evolution and Explosions of Massive Stars and Implications for Astrobiology; poster presented at the 2010 Astrobiology Science Conference, League City, TX, 26-29 April 2010.
- Palma, C., J.C. Charlton, K.A. Herrmann, A. Narayanan, and **N. Tr'Ehnl** (2007). Results from Penn State's Interactive, On-Line, Scifi Version of Astro 001; 2007 American Astronomical Society Meeting 211, poster #06.09. *Bulletin of the American Astronomical Society* **39**, 737.
- Palma, C., J.C. Charlton, **N. Tr'Ehnl**, K.A. Herrmann, and A. Narayanan (2006). Astro 001 through an interactive, multimedia science fiction story; 2007 AAS/AAPT Joint Meeting, American Astronomical Society Meeting 209, poster #170.09. *Bulletin of the American Astronomical Society* **38**, 1144.

CONFERENCE / WORKSHOP ATTENDANCE

- 2010 Astrobiology Science Conference**, "Evolution and Life: Surviving Catastrophes and Extremes on Earth and Beyond." Conference held April 26–29, 2010, League City, TX, USA.
- 2010 Sagan Exoplanet Summer Workshop**, "Stars as Homes for Habitable Planetary Systems." Workshop held July 26-30, 2010, CalTech, Pasadena, CA, USA.
- 2011 Center for Astronomy Education Mesa Workshop**, "Improving the College Introductory Astronomy General Education Course Through Active Engagement: A Tier I (Introductory) Workshop." Workshop held October 22-23, 2011, Mesa Community College, Mesa, AZ, USA.

EMPLOYMENT

Department of Astronomy and Astrophysics, The Pennsylvania State University,
University Park, Pennsylvania

Development of notes and slide presentations for summer teachers' workshop on black holes (for Dr. N. Brandt), Summer 2007

Illustration for press release to accompany "Exotic Earths: Forming Habitable Worlds with Giant Planet Migration" (S. Raymond, A. Mandell, S. Sigurdsson), Fall 2006

Publicity poster designs for the 2000-2001, 2001-2002, and 2006-2007 Friedman public lecture series

Center for Gravitational Wave Physics, The Pennsylvania State University,
University Park, Pennsylvania

Web designer and illustrator for the Center for Gravitational Wave Physics (CGWP) and Institute for Gravitational Physics and Geometry (IGPG), Fall 2001 – Fall 2004

SERVICE

School of Earth and Space Exploration, Arizona State University, Tempe, Arizona

Presenter at "Earth and Space Exploration Day": 3-D show, "Mars through the Rovers' Eyes" (designed by M. Simkin); estimated attendance: ~150 over 6 shows (~1200 for the overall event); 3 November 2007, 1 November 2008, and 24 October 2009

SESE Colloquium Committee: a committee made up of graduate students, responsible for arranging visitors and presentations for SESE's colloquium series (member Spring 2008; vice-chair Fall 2008-Spring 2009)

Cover illustration and figure compositions for SESE/ASU's proposal for membership in the NASA Astrobiology Institute, 2009-2014

Web design for ASU Astrobiology group

Trevor Brown and Metro Tech High Schools, Phoenix, Arizona

9, 16 June 2009

Presented planetarium shows to local high school students using the portable, inflatable "StarLab" planetarium

Arizona Science Center, Phoenix, Arizona

14 March 2009

Staffed astrobiology exhibit and information table during an outreach event for the International Year of Astronomy

Penn State Department of Astronomy and Astrophysics,
Penn State Astronomy Club

Summer 1999 – Summer 2007

“AstroFest” (co-founder and presenter) and “AstroNight” (presenter), Summers 1999–2001, 2006–2007: event planning, print advertisement design, stargazing coordinator, astronomical art exhibit, short presentation on the history of "space art," and “3-D tour of Mars.” "AstroFest" is a 4-evening open house concurrent with the Central Pennsylvania Festival of the Arts; attendance averages >1600. "AstroNight" is a single-evening event held during the Fall semester; attendance averages ~300

Penn State Astronomy Club, Fall 1998 – Spring 2001, (president, Fall 1999 – Spring 2000): coordinated free public stargazing events, clear Friday nights during the regular school year, planned trips to observatories, meteor shower viewing parties, arranged for guest speakers, and coordinated programs for monthly meetings, open to the public

MEMBERSHIPS

Artist Member, International Association of Astronomical Artists (<http://iaaa.org>)

LANGUAGE PROFICIENCIES

Japanese (3 years' study), intermediate reading and speaking

German (3 years' study), intermediate reading and speaking