LISA KALTENEGGER (PhD. MSc. MEng.)

Harvard-Smithsonian Center for Astrophysics, 60 Garden Str. MS20, Cambridge, MA 02138, USA

EDUCATION

Ph.D., Astrophysics, Karl Franzens Univ Graz / ESTEC *graduated summa cum laude* 2005
"Search for Extraterrestrial Planets: DARWIN mission Target Stars & Array Architectures"

M.Sci., Astrophysics, Karl Franzens Univ Graz/IAC *graduated summa cum laude* 1999
"Extrasolar Planet Search: Formation of Extrasolar Planets and Detection Methods"

M.Eng., Physics & Engineering, Univ. of Technology Graz *graduated summa cum laude* 2001
"Application of Optical Tweezers in Medicine & Biology"

EMPLOYMENT & RESEARCH EXPERIENCE

Research Associate, Harvard Astronomy Department	2009- current
Lecturer, Harvard Astronomy Department	2008- current
Postdoctoral Fellow SAO, Harvard Smithsonian CfA, USA	2005 – 2009
Consultant to ESA Science Dep. AURORA Technolgy: Netherlands	2003 – 2004
Young Engineer ESA/ESTEC: Dep. of Future Projects, Netherlands	2001 - 2002
Research fellow, Georgia Institute of Technology, USA	2000 – 2001
LIGO 2000 Summer Undergraduate Research Projects, California Inst. of Technology, USA	2000
United Nations (UNO), Conference moderator, Austria	1999
JHU 1999 Summer Undergraduate Research Projects, JHU, USA	1999
Research fellow, Instituto de Astrofisica de Canarias (IAC), Spain	1998 – 1999

AWARDS & HONORS

Tinsley Scolar University of Texas Austin	2009
America's Young Innovator in Arts and Science Award 2007, Smithsonian Magazine	2007
P. Hertelendy Award and Prize Lecture for Outstanding Young Scientist at CfA 2007	2007
Austrian National Award for Outstanding Academic Achievements	2005
SubAuspices Austrian Academic excellence prize (awarded personally by Austrian president)	2004
National Award of the Ministry of Educations for Outstanding Academic Achievement(PhD)	2004
National Award of the Ministry of Educations for Outstanding Academic Achievement(MSc)	2000
Awards of Academic Achievement, Tech. Univ. Graz & KF Univ Graz	1996 through 2001

INTERNATIONAL SCIENCE PANELS

Lead of the Habitability Group (Pale Blue Dot Initiative)	2008 – current
ISSI team "Evolution of Exoplanet Atmospheres and their Characterization"	2007 - current
TPF-I: Science Working Group: invited external expert	2005 – current
Darwin Science Advisory Committee: member as part of ESA & external expert	2002 – current

PRESS RELEASE

"Finding Twin Earths:Harder Than We Thought" http://www.cfa.harvard.edu/news/2009/pr200909.html	Mar 09
"3 Top Young CfA Astronomers Honored" http://www.cfa.harvard.edu/press/2007/pr200730.html	Nov 07
"Astronomers reveal first Alien ID chart" http://www.cfa.harvard.edu/press/2006/pr0625.html	Oct 06

SPACE MISSION PROPOSAL TEAM MEMBER

Darwin (2007), SEE-COAST(2007), ASTRO(2007), Terrestrial Planet Finder – Interferometer

EDITORIAL BOARD OF INTERNATIONAL JOURNALS

Astrobiology (editorial board), Encyclopedia of astrobiology (field editor)

PROFESSIONAL ASSOCIATIONS

AAS, DPS, Europlanet Network, ISSI, CfA Women in Science, ÖWF (Austrian Space Forum)

CONFERENCES Organizer

Scientific Organizing Committee

DPS (Division for Planetary Sciences) 2009, Puerto Rico	Oct. 09
Goldschmidt - Dynamics of Early Earth-Like Planets and Super-Earths, Davos	July 09
Cosmic Cataclysms and life ESLAB 08, Frascati, Italy	Nov. 08
Super Earth Workshop, Aspen, USA	Aug. 08
Goldschmidt - Early Life, geochemical and dynamical aspects, Vancouver	July 08
AbSciCon 2008, Santa Clara, CA: Plenary Future Missions and what they can detect	April 08
AbSciCon 2008, Santa Clara, CA: Habitability on Super Earths	April 08
Physics and Astrophysics of Planetary Systems, Les Houches School, France	Aug. 08
European Planetary Science Congress, Berlin: Biomarkers and their detectabilty	Sept 07
European Planetary Science Congress, Potsdam: Concepts of Habitability	Sept 06
LOC: “Transiting Planets”, IAU Symposium 253, Cambridge, USA	May 08
Journal club: Harvard EPS and CfA Journal club (weekly interdisciplinary meeting)	07/08

MEDIA COVERAGE

USA Weekend, The Economist, Smithsonian Magazine, BBC, New Scientist, USA-Today, Christian Science Monitor, AP, Spiegel, Die Zeit, several web-based forums

Interviews:

NOVA (TV) (Discovery Channel)	Oct 08
WUML 91.5 Stargazer Segment (Radio)	April 08
BBC World News (Radio)	Oct 07
‘Eye on the sky’ SAO Project (webbased TV interview)	Feb 07
Channel 7 News (TV)	Nov 06
National Geographics, New Scientist (podcasts)	Nov 06

Invited speaker

Internationl Conferences

Naples, Italy, 21st Colloquium on High Res. Mol.Spectroscopy, “Spectral Evolution”	Aug 09
ESA/ASA summerschool 2009, Austria, “Atmospheric Biomarkers”	July 09
HSTcl Baltimore, USA, “Search for Habitability on exoplanets”	May 09
EGU, Vienna, “Spectral Evolution of Habitable Planets”	April 09
Exeter Univ. workshop, UK, “Modeling exoplanet atmospheres”	Sept 08
ESO Elba 2008, Italy, “Atmospheric Biomarkers and their detectability”	Sept 08
HITRAN conference, USA, “Detectability and Challenges on Atmospheric Biomarkers”	July 08
Nantes Super-Earth Conf., France, “Atmospheres of Super-Earths”	June 08
AbSciCon 2008, USA, “Habitability of Super Earths”	April 08
Les Houches Winter School: “Biomarkers on exoplanets”	Feb 08
Max Planck Symposium, Berlin: “Characterizing the Pale Blue Dot”	Feb 08
Darwin mtg, IAS, Paris: “Comparative planetology and the search for life”	Dec 07
European Planetary Science Congress, Berlin: “Biomarkers and their detectabilty”	Sept 07
Alpbach Summer School, Austria, "Signature of life on extrasolar planets"	July 07
ESO symposium, Santiago de Chile: “Exoplanet search, Biosignatures, and targets”	March 07
3rd International TPF/Darwin Workshop, L.A.: “Evolution of Earth’s atmosphere”	Nov. 06
European Planetary Science Congress, Berlin: "Evolving Earth"	Sept. 06
Pale Blue Dot III, Chicago: “Techniques and future observation of terrestrial planets”	Sept. 06
ESOF2006, Munich: “Possible spectra signature of life in planetary atmosphere”	May 06
AbSciCon 2006, D.C.: “Future missions on extrasolar planets and what they can tell us”	March 06
ISSI, Bern: “Evolution of Biomarkers over geological timescale”	Feb 06
COSPAR, Paris: “Darwin and Search for Exo-terrestrial Planets”	July 04

Invited Colloquia

'Spectral evolution of an Earth-like planet, Search for signs of life, Future space missions'

Univ. Texas Austin (N. Evans)	May 09
Dartmouth (B.Chabey)	Jan 09
Univ. Heidelberg (R. Klessen)	May 08
Univ. Colorado (F. Bagenal)	April 08
CfA (Ch. Alcock)	Sept 07
Michelson Science Center (G. van der Belle)	May 05
ESTEC (M. Fridlund)	Sept 04

Invited Seminars

Brown Univ. (R. Cook)	April 09
Univ. Texas San Antonio (E. Schegel)	Feb 09
Univ. Texas Austin (J. Scalo)	Feb 09
Open Univ. (C. Cockell)	Dec 08
Univ. Oxford (P. Read)	Sept 08
CfA OIR seminar (R. Schild)	April 08
CfA ITC seminar (L. Yuexing)	March 08
Univ Heidelberg (R Somerville)	March 08
Univ. Arizona (C Impey)	Feb 08
Univ. Bordeaux (V. Wakelam)	Dec 07
Univ Vienna (E. Lohinger)	Dec 07
Arizona State University (K. Hodges)	March 07
Museum of Natural History (B. Oppenheimer)	Feb 07
Univ. of Colorado., Boulder (S. Raymond)	Jan 07
CalTech, L.A. (Y.Yung)	Jan 07
Observatory Geneva, Geneva (M. Mayor)	Dec 06
Observ de Paris, Meudon (J. Schneider)	Dec 06
ENS Lyon, Lyon (F. Selsis)	Dec 06
Univ. de Paris Sur, Paris (A. Leger)	Nov 06
Penn State Univ.(J.Kastings)	May 06
CfA, OIR (W. Traub)	April 06
Univ. of Vienna (R. Dvorak)	Feb 06

Speaker:

Frascati ESLAB conf 2008, Italy, "Evolution of an Earths-like planet	Dec 08
AAS, Seattle, 'Evolution of biomarkers on Earthlike planets'	Jan 07
6th European Workshop on Astrobiology, "Evolving Earth over time	Oct 06
European Geophysical Union,"Evolution of atmospheric biomarkers over Earth's history	April 06
AbSciCon, 2006, D.C., "Search for Atmospheric Biomarkers & their Evolution over Time"	March 06
IAUC200, Nice, "Biomarkers and their evolution over time"	Nov 05
NAI 2005 mtg, "Darwin and the search for life"	April 05
SPIE: "Requirements on the stellar rejection for the Darwin mission"	July 04

SERVICE IN THE SCIENCE COMMUNITY

NASA and NSF review panels, Referee: Astrobiology, Icarus, ApJ, A&A, Springer

OUTREACH ACTIVITIES

Scientific Advisor:

Exoplanets and beyond, CfA (bringing cutting-edge science into the K-12 classroom)	2008
Eye on the sky, CfA education department, dialogue with astronomers	2007
The Habitable Planet Project, Harvard (web based initiative for the classroom)	2007
Science at Stake: webbased Initiative for journalists and general public	2006 - current

Public lectures

Christmas Lecture, Open University,UK "Finding Other Worlds"	Dec. 08
Boston Amateur Astronomers, Boston, USA: "Searching for the pPale Blue Dot"	Oct. 07
Skyscrapers Astro Society,USA "How to find Fingerprints of Life on Exoplanets"	July 07
Willstone Highschool, 8th grade, lecture at star party	March 07
CfA Public lecture, Boston, USA: "Epochs of Life"	Nov 06

TEACHING

Lecturer:

Developed

- High quality on-line calculation training lectures, that discuss the physical nature and evolution of stars and planets in our Milky Way Galaxy, and how observing stars in distant galaxies enables us to map the Universe.
- Set the material in context with current day event and culture.
- Interactive teaching concepts and experiments
- Weekly quizzes, homework sets that probe the understanding of scientific concepts
- Midterm and Final exames that develop scientific thinking and understanding
- Innovative interactive telescope activities (daytime and evening sessions)

Graded quizzes, exames and lab reports
Gave feedback that develops the scientific thinking of non-science students further.
Provided support to students in a challenging practical environment of using telescopes.
Interacted with students on any problems and questions related to the course

Science A-36 : Observing the Sun and the Stars: **Fall 2008-2009**
Harvard Core Course and Laboratory Session (co-teach with J. Grindley)
Scope: Direct observations of the Sun and the stars, to learn how we can understand the Universe. In small sections, students conduct hands-on telescopic observations using modern instrumentation to explore their energy output, relative distances, temperatures, composition, and life histories.

Astronomy 1 The Astronomical Universe (co-teach w. S. J. Steel**)** **Spring 2008**
Scope: Introductory course for non-science concentrators, which provides a basic understanding of our Universe. Basic principles of physics & observational astronomy using elementary algebra.

Science A-54. Life as a Planetary Phenomenon (2 classes for D. Sasselov) **Spring 2008**
Scope: This course focusses the relationship between life and the planet on which it resides and the scientific quest to understand where life might thrive beyond Earth.

Advisor

Sarah Rugheimer (graduate student Harvard)	2008-current
Leah Kilvert (Undergraduate Summer Project SAO)	2008

Visiting Professor

Ecole Normale Supérieure de Lyon (group of F. Selsis)	Nov/Dec 06
Univ. of Arizona Astrobiology Lecture series (C Impey)	Feb 08
Univ. Vienna - Graduate student seminar	Dec 08

Team Tutor: team management and group leadership July 2009, 2007, 2005
ESA/ASA Summerschool Alpbach (15 students, 2 week intense course)
Scope: 2 week intense design course for European science/engineering graduate and undergraduate students to provide new ideas & mission concepts for small satellites.

- building the team, leading discussions, initiating brainstorming and new design concepts, teaching main design and science key points,
- organizing the final report and 1 hour presentation of the mission by all students
- teaching students how to interact in an international, interdisciplinary environment

LANGUAGES

German: native English,Spanish: fluent Italian,Dutch: good PORTUGUESE: basic