



Holly Larson Capelo

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Nationality: United States of America
Permanent Swiss Resident: Work Permit C

EDUCATION

Georg-August Universität Göttingen, Göttingen, Germany 16.10.2017 (*Viva Voce*)/29.05.2018
International Max Planck Research School (IMPRS) for Physics of Biological and Complex Systems (PBCS) and Georg-August University School of Science (GAUSS) at the **Max-Planck-Institut für Dynamik und Selbstorganisation**

Ph.D. Physics

Thesis title: *Dynamics of Suspended Dust Grains: Experimental Investigations and Implications for Protoplanetary Discs*

Advisor: Prof. Dr. Dr. h.c. Eberhard Bodenschatz

Wesleyan University, Middletown, CT, USA

27.05.2012

M.A. Astronomy

Thesis title: *The Trailing Edge of the KH 15D Circumbinary Ring*

Advisor: Prof. Dr. William Herbst

Columbia University, New York, NY, USA

11.02.2009

B.Sc. Astronomy

B.A. Literature and Writing

Thesis title: *Seeking X-ray Counterparts to Emission-line Sources in the Galactic Plane*

Advisor: Prof. Dr. Michael Shara

EXPERIENCE

Physics Institute, University of Bern[\[url\]](#)

since 06.2018

Postdoctoral Research; Project Manager, Senior Scientist

Bern, Switzerland

- Project leader of experimental Microgravity research program TEMPus VoLA.
- Responsible for development of scientific apparatus used in support of the space exploration activities of the Planetary Imaging Group
- Active in international collaboration on the physics of Comets (Cophylab)
- Regular host for international speakers at the Center for Space and Habitability (CSH)
- Delivered invited talks and presentations on behalf of the Swiss National Center for Competence in Research NCCR PlanetS.
- Assist with supervision of Ph.D. candidate Stefano Spadaccia, UniBE, Masters student Noah Molinski TU Braunschweig, Bachelor student thesis Thomas Planchet UniBE, supervision of two laboratory assistants: Dr. Bernhard Jost and Dr. Romain Cerubini

Max-Planck-Institut für Dynamik und Selbstorganisation [\[url\]](#)

08.2012-10.2017

Doctoral Research

Göttingen, Germany

- Planned and executed ground-based experiments to test fundamentals of astrophysical theory relevant for the early stages of planet formation; situated in a research group with expertise in turbulence and convection experiments and interdisciplinary ties to astrophysics groups
- Performed project oversight activities such as laboratory setup and equipment acquisition; mechanical apparatus design; coordinated a team including several technicians (engineering, electrical, mechanical, safety), and two student projects, one leading to a bachelor's thesis at the ENS Lyon

- Applied diverse skills including network and scientific-device programming, basic wood and metal machining, safe use of a high-powered laser, assembling and calibrating resistive thermal devices, familiarity with vacuum system technology, practical electronics, microfluidic device creation in cleanroom environment, the use of synchronized high-speed cameras for Lagrangian particle tracking and particle image velocimetry, digital image processing, and quantitative data analysis
- Presented project updates and results at several international conferences

Yale University Department of Astronomy [\[url\]](#)

01.2009-07.2010

Queue Manager

New Haven, CT, USA

- Responsible for daily observing schedules of the 1.3m telescope of the SMARTS (Small and Moderate Aperture Research Telescope System) consortium [\[url\]](#)
- Facilitated communication between scientific investigators and technical personnel
- Performed remote data processing and data distribution

American Museum of Natural History [\[url\]](#)

06.2008-07.2008

Research Assistant

Rose Center for Earth and Space, NY, NY, USA

- Cross-referenced astronomical databases with proprietary ground-based observational survey of Galactic center, conducted under United States National Science Foundation grant ‘Research Experiences for Undergraduates’ [\[url\]](#)

Center for International Earth Science Information Network [\[url\]](#)

03.2007-06.2007

Research Assistant

Lamont-Doherty Earth Observatory, Palisades, NY, USA

- Generated spatially resolved (ArcGIS) maps of animal species populations from NASA Earth Science Data [\[url\]](#)

TEACHING

Guest Lecturer, University of Bern, Switzerland

2024-2025

PHYS483670 : Exoplanets and the Origins of Life: Exoplanet formation and interiors

Laboratory Instructor, University of Bern, Switzerland

2019-2024

PHYS532776 Nuclear Magnetic Resonance, impact cratering, light scattering (Fall Semesters)

Teaching Assistant, Georg-August-Universität, Göttingen, Germany

2012

PHYS532776 Complex and Non-linear Dynamics in Physics and Biology (Fall semester)

Teaching Assistant, Wesleyan University, Middletown, CT, USA

2010-2012

ASTR155 Introduction to Astronomy (multiple iterations, included practical lab)

ASTR105 Stars and Stellar Systems

Teaching Fellow, Yale University, New Haven, CT, USA

2009-2010

ASTR140 Frontiers and Controversies in Astrophysics (Spring Semester)

ASTR135 Archaeoastronomy (Fall Semester)

Standardized Test Preparation, CT, USA (various locations)

2009-2011

Delivered workshops and private tutoring for high school, college and graduate school entry exams (GRE, SAT, SSAT and PSAT)

Astronomy Instructor, Stanford University, Palo Alto, CA, USA

26.06.2006-04.08.2006

Students ages 11-15 yrs., Sally Ride Science Foundation Summer Camp

Six consecutive weeks, provided five hours daily instruction to female students ages 11-15

AWARDS AND GRANTS

- 2025-2026 Principal Investigator of early technology development project 'High Speed Imaging of Micrometeorites and Debris'; European Space Agency Open Space Innovation Platform.
- 2023-2025 SNSF grant number 207359. Studies of impact processes on small bodies: implications for asteroid formation and upcoming space missions
- 2021 Prize 'Best Scientist as Filmmaker' for short film "Dust Puzzles" at the 4th Global Science Film Festival
- 2021 Accepted PRODEX proposal in support of ESA-CORA project
- 2021 Selected ESA-CORA scientific proposal, designated for 78th ESA Parabolic flight campaign
- 2021 Selected experiment for 75 ESA Parabolic flight campaign
- 2019 Principal Investigator of microgravity research program TEMPus VoLA: The Timed Epstein Multi-pressure Vessel at Low Accelerations; supported as "New Initiative" by the Swiss National Centre for Competence in Research (NCCR) PlanetS
- 2019–2021 Swiss National Science Foundation flexibility grant; contribution for childcare expenses incurred due to work-related obligations, funding for laboratory assistances
- 2017 Travel grant from the IMPRS PBCS for the conference: *Planet Formation and Evolution 2017*
- 2013 Travel grant from the IMPRS PBCS for the program: *University of California High-Performance Astrocomputing Centre International Summer School on AstroComputing*
- 2013 Accepted NAO Proposal ID #2013A-0216: *Planet Formation in the KH 15D Circumbinary Ring*, W. Herbst, C. Hamilton, H. L. Capelo et al.
- 2009–2010 Teaching Fellowship, Yale University, Department of Astronomy, New Haven, CT, USA
- 2007 United States National Science Foundation grant Research Experiences for Undergraduates (REU), conducted at the American Museum of Natural History, Division of Physical Sciences, New York, NY, USA.
- 2006–2008 Hettena Scholarship for outstanding student in the physical sciences, School of General Studies, Columbia University. Equivalent to sixty percent tuition fees for a single semester, disbursed annually.

SERVICE

Advisor	European Space Agency facility definition team: ASTERIA (ACTIVE SENSORS FOR TELEMETRY OF EXTRATERRESTRIAL IMPACTORS AT GATEWAY),
Referee	Monthly Notices of the Royal Astronomical Society (MNRAS), Astronomy & Astrophysics (A&A), The Astrophysical Journal (ApJ), Review of Scientific Instruments, Icarus
PhD committee member	Stefano Pollastri student of Prof. Dr. Costanza Bonadonna, Département des sciences de la Terre, Université de Genève
Organization	Chair, SOC, LOC: NCCR PlanetS workshop "Dust, Pebbles, and Minor Bodies" Host for seminar and colloquia speakers at the Center for Space and Habitability Host monthly group meetings of the Laboratory for Pattern Formation and Nanobiocomplexity at MPIDS
Co-editor in chief	Exoplanet news