

BIOGRAPHICAL SKETCH FOR DANIEL APAI

Research Interests: Extrasolar Planets; Planet formation; Planetary atmospheres; Astrobiology

Professional Appointments

2017 – Associate Professor, Depts. of Astronomy and Planetary Sciences, Univ. of Arizona
2017 – 2018 Visiting Scientist, Max Planck Institute for Astronomy, Heidelberg
2011 – 2017 Assistant Professor, Depts. of Astronomy and Planetary Sciences, Univ. Arizona
2008 – 2011 Assistant Astronomer, Space Telescope Science Institute

Education

2004 PhD, University of Heidelberg and Max Planck Institute of Astronomy
2000 MSc in Physics, University of Szeged

Languages: Hungarian (mother tongue), English and German (fluent), Italian (basic)

Recent Service:

Science Advisory Committee member, *Giant Magellan Telescope*
Executive Committee member, *NASA Exoplanet Program Analysis Group (EXOPAG)*
Steering Committee member, *NASA Nexus for Exoplanet System Science (NExSS)*
Chair, *Exoplanet Science Questions for Direct Imaging Missions, SAG15/EXOPAG*
Member, *Hubble Space Telescope Financial Review Committee*

Teaching Experience

2012, 2013, 2014, 2015 *Life in the Universe*, Gen. Ed., U. Arizona
2012, 2014, 2016, 2017 *Planetary Astrobiology*, advanced undergrad./grad. course, U. Arizona
2010 *Planets, Life & Universe*, advanced undergrad. astrobiology course, JHU Academic advisor

Professional Awards

2012 Tinsley Lecturer, University of Texas
2004 Patzer Prize for Best PhD Dissertation, MPA Heidelberg
2000 DAAD Doctoral Fellowship
1999 Fellowship of Hungarian Republic

Major Approved Programs as Principal Investigator

7 Hubble Space Telescope + 4 Spitzer Space Telescope programs, including:
- *Extrasolar Storms*: Spitzer Exploration Science Program (1,144 Spitzer hour, 24 HST orbits)
- *Cloud Atlas*: Hubble Space Telescope (112 orbits)
Earths in Other Solar Systems: \$5.7m program (R&A), 30-member team
Nautilus: A large-aperture space telescope for a biosignature survey based on diffractive optics
Scorpion Survey: 100-star Extreme Adaptive Optics survey for giant exoplanets (VLT/SPHERE)
Project EDEN: A survey for habitable planets within 15 pc
An additional 20+ Programs on 6–8m-class optical/near-infrared telescopes

Advising/Mentoring

Postdoctoral Researchers (7): Benjamin Rackham, Jonathan Rees, Elena Manjavacas, Michael McGauley, Hao Yang, Theodora Karalidi, Esther Bünzli

Graduate Students (8): Alex Bixel (UA), Kevin Wagner (UA), Yifan Zhou (UA), Ben Wei Peng Lew (UA), Benjamin Rackham (UA), Davin Flateau (UA), Veselin Kostov (JHU), Justin Rogers (JHU)

Service as Reviewer and Referee

Referee: Science, Astrophysical Journal, Astronomy & Astrophysics, PASP, Elements

Reviewer/Panelist: NSF Exoplanets panel, Spitzer Space Telescope TAC, HST Director's Discretionary Time Committee, Giacconi Fellowship Committee, Swiss National Science Foundation, NASA Astrobiology Institute Director's Discretionary Funds, HST TAC, NASA's Kepler Participating Scientist program, NASA Postdoctoral Fellowship program, NASA Origins of Solar Systems program, Intl. Representative to the European Southern Observatory TAC, etc.

Selected Publications (140+ refereed publications; 5,000+ citations)

- 1) **Apai**, Milster, Kim, Bixel, Schneider, Liang, Arenberg 2019 Astron. J., submitted
A Thousand Earths: A Very Large Aperture, Ultralight Space Telescope Array for Atmospheric Biosignature Surveys
- 2) Zhang*, Zhou*, Rackham*, **Apai** 2018 Astronomical Journal, 156, 178
The Near-Infrared Transmission Spectra of TRAPPIST-1 Planets b, c, d, e, f, and g and Stellar Contamination in Multi-Epoch Transit Spectra
- 3) **Apai**, Karalidi*, Marley et al. 2017 Science 357, 683
Zones, Spots, and Planetary-Scale Waves Beating in Brown Dwarf Atmospheres
- 4) **Apai** and SAG15 team, NASA EXOPAG Study Assessment Group 15 (<http://tiny.cc/sag15>)
Science Questions for Future High-Contrast Imaging Exoplanet Missions
- 5) Bixel* and **Apai** 2017 Astrophysical Journal 836, 31
Probabilistic Constraints on the Mass and Composition of Proxima b
- 6) **Apai** et al. 2016 Astrophysical Journal 820, 40
High-cadence, high-contrast imaging for exoplanet mapping: Satellite-spot-corrected relative photometry
- 7) Zhou*, **Apai** et al. 2016 Astrophysical Journal 818, 176
Discovery of Rotational Modulations in the Planetary-mass Companion 2M1207b: Intermediate Rotational Period and Heterogeneous Clouds in a Low-gravity Atmosphere
- 8) **Apai** et al. 2015 Astrophysical Journal 800, 136
The Inner Disk Structure, Disk-Planet Interactions, and Temporal Evolution in the Beta Pictoris System: A Two-Epoch HST/STIS Coronagraphic Study

* students/postdocs advised by Apai

Books

Protoplanetary Dust: The Astrophysical and Cosmochemical Perspectives

Editors: D. Apai and D. Lauretta, Planetary Science Series, Cambridge University Press, 2010
370 pp., 21 authors, 40 referees

US Patents: 2