

## **BIOGRAPHICAL SKETCH FOR PI DANIEL APAI**

**Research Interests:** Extrasolar Planets; Planet formation and atmospheres; Astrobiology

### **Professional Appointments**

2017 – Associate Professor, Depts. of Astronomy and Planetary Sciences, University of Arizona

2011 – Assistant Professor, Depts. of Astronomy and Planetary Sciences, University of 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)

### **Committee Memberships Include**

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 (standing 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, MPIA 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 50m space telescope for galactic biosignature surveys 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 (6):* 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 Fleteau (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 (120+ refereed publications; 4,200+ citations)**

- 1) **Apai** et al. 2017 Science 357, 683  
*Zones, Spots, and Planetary-Scale Waves Beating in Brown Dwarf Atmospheres*
- 2) **Apai** and SAG15 team, NASA EXOPAG Study Assessment Group 15 (<http://tiny.cc/sag15>)  
*Science Questions for Future High-Contrast Imaging Exoplanet Missions*
- 3) Bixel\* and **Apai** 2017 Astrophysical Journal 836, 31  
*Probabilistic Constraints on the Mass and Composition of Proxima b*
- 4) **Apai** et al. 2016 Astrophysical Journal 820, 40  
*High-cadence, high-contrast imaging for exoplanet mapping: Satellite-spot-corrected relative photometry*
- 5) 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*
- 6) **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*
- 7) Wagner\*, **Apai**, Kasper, Robberto 2015 Astrophysical Journal 813, 2  
*Discovery of a Two-armed Spiral Structure in the Gapped Disk around the Herbig Ae star HD 100453*
- 8) **Apai** et al. 2013 Astrophysical Journal 768, 121  
*HST Spectral Mapping of L/T Transition Brown Dwarfs Reveals Cloud Thickness Variations*
- 9) Lagrange, Bonnefoy, Chauvin, **Apai** et al. 2010 Science: *A Giant Planet Imaged in the Disk of the Young Star  $\beta$  Pictoris*

\* 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