

Curriculum Vitae of Dániel Apai

Born: Jan 11, 1977
Citizenship: Hungarian

Space Telescope Science Institute
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Research Interests

Exoplanets and Planetary Sciences, Planet Formation, Astrobiology

Education/Employment

- 2011- Assistant Professor, Dept. of Astronomy and Dept. of Planetary Sciences
The University of Arizona
- 2008- Assistant Astronomer, Science Policies Group,
Space Telescope Science Institute, Baltimore
- 2004 Research Associate, Steward Observatory and Laplace Astrobiology Center
- 2004 PhD, Max Planck Institute for Astronomy, Advisor: Th. Henning
- 2000 Researcher-Grade University Diploma in Physics, University of Szeged, Hungary

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

Professional Memberships

International Astronomical Union, Meteoritical Society, American Astronomical Society,
American Association for the Advancement of Science, Astrobiology Society

HST Mission Support

- 2010 Editor, Cycle-19 HST Call for Proposals
- 2010 Support to HST Time Allocation Committee
- 2009 Editor, Cycle-18 HST Call for Proposals
- 2009 Analysis of HST's Science Impact, Productivity, and Time Allocation Policy

Teaching Experience

- 2010 Co-director, *Planets, Life & Universe*, multi-disciplinary course at JHU
- 2009 Advisor and Lecturer, STScI Summer Student Program
- 2006 Lead of the Bok 90" Telescope Activity in the Laplace Astrobiology School
- 2003 Undergraduate Astronomy Lab Lead, 8 hours/week, Univ. of Heidelberg

Postdocs/Students

- Veselin Kostov, Grad. Student, Johns Hopkins University, 2009–
- Justin Rogers, Grad. Student, Johns Hopkins University, 2008–
- Judit Szulágyi, Undergrad. Student, 2009
- László Szűcs, Undergrad. Student, 2009
- Emily Hardegree-Ullman, Undergrad. Student, 2006
- Yancey Sechrest, Undergrad. Student, 2005

Curriculum Vitae of Dániel Apai

Additional Training

- 2007 Evolutionary Watersheds Workshop, Biosphere 2, Arizona
- 2005 Friday Harbor Marine Biology Workshop, Univ. Washington Astrobiology Node
- 2002 Optical Interferometry Winter School, Les Houches, France
- 2000 NEON Observing School, Calar Alto Observatories, Spain

Recent Major Telescope Time Allocations as PI include

- HST (24 orbits), VLT: NACO (16 nights), ISAAC (4 nights), HAWK-I (2 nights),
- MMT (20 nights), Spitzer (72 hours), Gemini/Michelle, IRAM-30m

Service as Reviewer or Referee

- Referee for the *Astrophysical Journal*, *Astronomy & Astrophysics*, *PASP*, *Elements*
- 2010 Panelist, NASA Small Bodies Database
- 2009 Reviewer, HST Director's Discretionary Time Committee
- 2008 Giacconi Fellowship Committee
- 2008 Reviewer, Swiss National Science Foundation
- 2008 Reviewer, NASA Astrobiology Institute, Director's Discretionary Funds
- 2008 Time Allocation Committee, Hubble Space Telescope
- 2007 Panelist, NASA's Kepler Mission
- 2006 Reviewer for the NASA *Postdoctoral Fellowship* program
- 2006 Reviewer for the NASA *Origins of Solar Systems* program

Meeting Organization and Community Service

- 2010 Organizing Committee, *STScI May Symposium on Dark Matter*
- 2010 Head of Organizing Committee, Workshop, *Volatile Delivery to Habitable Planets*
- 2010 Co-organizer of workshop *Dust from the ISM to Rocky Planets*, Budapest
- 2010 Invited Convener, *Stellar and Cometary Mineralogy*, International Mineralogical Association Meeting, Budapest
- 2009- STScI-JHU Astrobiology Lecture: *Life, Planets, and Universe*
- 2009 Organizing Committee, Decadal Survey Townhall Discussion, Baltimore
- 2009 SOC, Beyond JWST: Next Steps in UV/OPT/NIR Space Astronomy, Baltimore
- 2008 Member of the Executive Council Nomination Committee, Astrobiology Society
- 2007 Science Program Committee member for 70th Annual Meteoritical Society Meeting
- 2007 Organizer: Special Session at the Annual Meteoritical Society Meeting
- 2006 Organizer: Cool Stars Splinter Session: Disks around Cool Stars and Brown Dwarfs
- 2006 Organizer: Planet Formation Workshop, Tucson (40 participants)
- 2005 Organizing Committee of the Laplace Astrobiology School 2006
- 2005-7 Organizer of the Laplace Astrobiology Lunch Series (~1,100+ participants in total)
- 2004-7 Organizer of the Laplace Astrobiology Journal Club
- 2003 Local Organizing Committee: DARWIN/TPF Meeting, Heidelberg

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Research Grants

Year	Program	PI	Grant (USD)
2010	Herschel Data Analysis (US PI of 2 programs)	D. Apai	12,000
2010	NASA Planetary Atmospheres: Exoplanet Spectroscopy from the Ground: Surveying Absorption features in Hot Jupiters	D. Apai	299,000 [pending]
2010	Spitzer Data Analysis	D. Apai	5,000
2010	HST Data Analysis	D. Apai	105,000
2010	NASA Origins: MEPHISTO: Mapping the Exoplanets Population with High-Contrast Observations	D. Apai	179,000
2010	STScI Workshop Funds <i>The Delivery of Volatiles to Forming Planets: From Earth to Exo-Earths with JWST</i>	D. Apai	12,000
2010	STScI Director's Discretionary Funds <i>Mapping Exoplanets with JWST</i>	D. Apai	46,000
2009	STScI Director's Discretionary Funds <i>A JHU-STScI Astrobiology Seminar Series</i>	D. Apai	10,000
2009	NSF Stellar Astronomy & Astrophysics <i>Physical Properties of Hot Jupiters from Ground-based Eclipse Photometry</i>	M. Lopez-Morales	319,000
2009	Hubble Data Analysis, 75 orbits	M. Robberto	280,564
2008	STScI Director's Discretionary Funds	D. Apai	44,268
2008	Spitzer Data Analysis	A. Kóspál	61,953
2007	Spitzer Data Analysis	P. Ábrahám	46,920
2006	Spitzer Data Analysis	D. Apai	103,670
2006	Spitzer Data Analysis	I. Pascucci	43,282
2006	Hubble Data Analysis	C. Grady	149,859
2005	Spitzer Data Analysis	S. Mohanty	34,230
2005	Spitzer Data Analysis	P. Abraham	62,510
2005	Spitzer Data Analysis	J. Bouwman	40,529
2004	Spitzer Data Analysis	D. Apai	61,578

Publication List

45 refereed papers, 12 as first author, 14 as second author, ~800 citations [ADS]

1 book edited, 2 book chapters, * - students advised by Apai

45 Currie et al. (incl. **Apai**) 2011 ApJ, submitted
A Combined Subaru/VLT/MMT 1-5 μ m study of the Atmospheres of Planets Orbiting HR8799

44 Bonnefoy et al. (incl. **Apai**) 2010 A&A, submitted
Ks-band high-resolution detection of Beta Pic b

43 Quanz et al. (incl. **Apai**) 2010 ApJ 722, 49
First Results from the NACO Apodizing Phase Plane: 4 micron Images of Beta Pic b

42 Kun et al. (incl. **Apai**) 2010 MNRAS, submitted
Photometric and Spectroscopic Observations of PV Cep in 2004-2010

41 Moór et al. (incl. **Apai**) 2010 ApJS, in press
Structure and Evolution of Debris Disks around F stars I. Observations, database and basic evolutionary aspects

40 *L. Szűcs, **Apai**, Pascucci, Dullemond 2010 ApJ 720, 1668
Stellar-mass dependent Disk Structure in Protoplanetary Disks

39 A-M. Lagrange, M. Bonnefoy, G. Chauvin, **D. Apai**, D. Ehrenreich, A. Boccaletti, D. Gratadour, D. Rouan, D. Mouillet, S. Lacour, M. Kasper 2010 Science 329, 57
A Giant Planet Imaged in the disk of the Young Star Beta Pictoris

38 M. López-Morales, J. L. Coughlin, D. K. Sing, A. Burrows, **D. Apai**, J. C. Rogers, D. Spiegel, 2010, ApJ 726, 36
Day-Side z'-band Emission and Eccentricity of WASP-12b

37 **D. Apai**, J. Lagerstrom, I. N. Reid, K. Levay, A. Nota, E. Henneken 2010 PASP, in press:
Lessons from a High-Impact Observatory: Science Impact and Productivity of the Hubble Space Telescope between 1998 and 2008

36 *J. Rogers, **D. Apai**, M. Lopez-Morales, D. K. Sing, A. Burrows, ApJ 2009 707, 1707
Ks-band Detection of Thermal Emission and Color Constraints to CoRoT-1b: A Low-albedo Planet with Inefficient Atmospheric Energy Redistribution and Temperature Inversion

35 M. Kasper, P. Amico, E. Pompei, N. Ageorges, **D. Apai**, et al. ESO Messenger 137, 8
Direct Imaging of Exoplanets and Brown Dwarfs with the VLT/NACO Pupil-Stabilized Lyot Coronagraphy at 4 micron

34 C. Grady and 26 authors, including **D. Apai**, 2009 ApJ 699, 1822:
Revealing the Structure of a Pre-Transitional Disk: The Case of the Herbig F Star HD 135344B

33 M. Janson, **D. Apai**, M. Zechmeister, W. Brandner, M. Kürster, M. Kasper, S. Reffert, M. Endl, D. Lafreniere, K. Geißler, S. Hippler, Th. Henning, 2009 MNRAS 399, 1707
Imaging search for the unseen companion to ϵ Ind A - Improving the detection limits with 4 μ m observations

32 A-M. Lagrange, M. Kasper, A. Boccaletti, G. Chauvin, D. Gratadour, T. Fusco, D. Ehrenreich, **D. Apai**, D. Mouillet 2009 A&A 506, 927
Constraining the Orbit of the Possible Companion to Beta Pictoris – New Deep Imaging

Publication List

- 31 A. Moór, **D. Apai**, I. Pascucci, P. Ábrahám, C. Grady, Th. Henning, A. Juhász, Cs. Kiss, Á. Kóspál 2009 ApJ 700, L25:
The discovery of New Warm Debris Disks around F-type Stars
- 30 **D. Apai** 2009 Earth, Moon & Planets, 105, 311
The Origins of Planetary Systems: Constraints and Challenges
- 29 G. Meeus, A. Juhász, Th. Henning, J. Bouwman, C. Chen, Lawson, **D. Apai**, I. Pascucci, Sicilia-Aguilar 2009 A&A, 497, 379:
MBM 12: Young Protoplanetary Disks at High Galactic Latitude
- 28 **D. Apai**, D. Lauretta 2010, review in *Protoplanetary Dust* book, Cambridge Univ. Press
Protoplanetary Dust and Planet Formation
- 27 I. Pascucci, **D. Apai**, K. Luhman et al. 2008 ApJ 696, 143
The different evolution of gas and dust in disks around sun-like and cool stars
- 26 A. Gáspár, G. H. Rieke, K. Y. L. Su, Z. Balog, D. Trilling, J. Muzzerole, **D. Apai**, Kelly, B. ApJ 697, 1578: *The low level of debris disk activity at the time of the Late Heavy Bombardment: a Spitzer study of Praesepe*
- 25 **D. Apai**, H. C. Connolly, Jr., D. Lauretta 2010, review in *Protoplanetary Dust* (Cambridge University Press): *Thermal processing in Protoplanetary Nebulae*
- 24 A. Juhász, Th. Henning, J. Bouwman, C. P. Dullemond, I. Pascucci, **D. Apai** 2009 ApJ 695, 1024: *Do we really know the dust? Systematics and Uncertainties of the spectral decomposition method*
- 23 Á. Kóspál, P. Ábrahám, **D. Apai**, D. R. Ardila, C. A. Grady, Th. Henning, A. Juhász, W. D. Miller, A. Moór 2008 MNRAS 383, 1015: *High-resolution polarimetry of Parsamian 21: revealing the structure of an edge-on FU Ori disc*
- 22 **D. Apai**, M. Janson, A. Moro-Martín, M. R. Meyer et al. 2008 ApJ 672, 1196
A Survey for Massive Giant Planets in Debris Disks with Evacuated Inner Cavities
- 21 I. Pascucci, **D. Apai**, E. Hardegree-Ullman, J.-S. Kim, J. Bouwman, M. R. Meyer 2008 ApJ 673, 477
Intermediate-separation binaries do not affect the early stages of planet formation
- 20 M. Kasper, **D. Apai**, M. Janson, W. Brandner 2007 A&A 472, 312
An L-band imaging search for giant planets in the Tucana and β Pictoris moving groups
- 19 S. P. Quanz, **D. Apai**, Th. Henning 2007 ApJ 656, 287
Dust Rings and Filaments around the Isolated Young Star V1331 Cygni
- 18 **D. Apai**, A. Bik, L. Kaper, Th. Henning, H. Zinnecker 2007 ApJ 655, 484
Massive Binaries in High-Mass Star-Forming Regions: A Multi-Epoch Radial Velocity Survey of Embedded O-Stars
- 17 C. P. Dullemond, **D. Apai**, S. Walch 2006 ApJ 640, 67:
Crystalline silicates as a probe of disk formation history

Publication List

- 16 A. Móor, P. Ábrahám, A. Derekas, Cs. Kiss, L. L. Kiss, **D. Apai**, C. Grady, Th. Henning 2006 ApJ 644, 525:
Nearby debris disk systems with high fractional luminosity reconsidered
- 15 **D. Apai**, I. Pascucci, J. Bouwman, A. Natta, Th. Henning, C. P. Dullemond 2005 Science 310, 834: *The onset of planet formation in brown dwarf disks*
- 14 E. Puga, M. Feldt, C. Alvarez, Th. Henning, **D. Apai**, E. Le Coared, A. Chalabaev, B. Stecklum 2006 ApJ 641, 373: *Outflows, disks, and stellar content in a region of high-mass star formation: G5.89-0.39 with adaptive optics*
- 13 **D. Apai**, H. Linz, Th. Henning, B. Stecklum 2005 A&A 434, 987:
Infrared portrait of the nearby massive star-forming region IRAS 09002-4732
- 12 **D. Apai**, L. V. Tóth, Th. Henning, R. Vavrek, Z. Kovács, D. Lemke 2005 A&A 433, L33: *HST/NICMOS observations of a proto-brown dwarf candidate*
- 11 M. F. Sterzik, I. Pascucci, **D. Apai**, N. van der Bliet, C. P. Dullemond 2004 A&A 427, 245: *Evolution of young brown dwarf disks in the mid-infrared*
- 10 **D. Apai**, I. Pascucci, M. F. Sterzik, N. van der Bliet, J. Bouwman, C. P. Dullemond, Th. Henning 2004 A&A 426, L53: *Grain growth and dust settling in a brown dwarf disk. Gemini/TReCS observations of CFHT-BD-Tau 4*
- 9 H. Wang, Th. Henning, **D. Apai**, R. Mundt 2004 ApJ 617, 1191:
Optical Outflows in the R Coronae Australis Molecular Cloud
- 8 I. Pascucci, **D. Apai**, B. Stecklum, Th. Henning, B. Brandl 2004 A&A 426, 523:
The Hot Core – UCHII Connection in G10.47
- 7 M. Kun, **D. Apai**, I. Pascucci, S. Nikolic, M. Eredics, 2004, BaltA, 13, 434:
Initial Conditions of Low, Intermediate and High Mass Star Formation
- 6 C. Grady, B. Woodgate, C. A. O. Torres, Th. Henning, **D. Apai**, and 11 coauthors 2004 ApJ 608, 809: *The Environment of the Optically Brightest Herbig Ae Star HD 104237*
- 5 H. Wang, **D. Apai**, Th. Henning, I. Pascucci 2004 ApJ 601, L83:
FU Orionis – A Binary Star?
- 4 **D. Apai**, I. Pascucci, W. Brandner, Th. Henning, R. Lenzen, D. E. Potter, A.-M. Lagrange, G. Rousset 2004 A&A 415, 671
NACO Polarimetric Differential Imaging of TW Hya: A Sharp Look at the Closest T Tauri Disk
- 3 I. Pascucci, **D. Apai**, Th. Henning, C. P. Dullemond 2003 ApJ 590, L111:
The First Detailed Look at a Brown Dwarf Disk
- 2 R. Klein, **D. Apai**, I. Pascucci, Th. Henning, L. B. F. M. Waters 2003 ApJ 593, L57:
First Detection of Millimeter Dust Emission from Brown Dwarf Disks
- 1 **D. Apai**, I. Pascucci, Th. Henning and 4 coauthors 2002 ApJ 573, L115:
Probing Dust around Brown Dwarfs: The naked LP 944-20 and the Disk of ChaH α 2

Publication List

Books

Protoplanetary Dust: The Astrophysical and Cosmochemical Perspectives

Editors: **D. Apai** and D. Lauretta

Planetary Science Series, Cambridge University Press, 2010

450 pp., 21 authors, 40 referees

Stars

Children's book for fourth-graders, by K. C. Asselin; Consultant: **D. Apai**

32 pages, Capstone Publishers, 2010

Thesis and Dissertation

D. Apai 2004 PhD Thesis, University of Heidelberg

Exploring the environment of young stars: disks, companions, and clusters

D. Apai 2000 MSc Thesis, University of Szeged

Multi-wavelength study of ultracompact HII regions

Selected Public Outreach Activities

Professional Consultant for *Stars*, a non-fiction book for fourth-graders,
CapStone Press, 2010

Hubble Briefings for Educators and NASA Solar System Ambassadors, 2010

The Grand Tour of Exoplanets - Our Search for the Worlds beyond the Solar System

STScI Public Lecture, 2010

The Grand Tour of Exoplanets - Our Search for the Worlds beyond the Solar System

STScI Public Lecture, 2009

Toward Earth's Origins: A Voyage through Astronomy, Meteoritics, and Deserts

D. Apai, 2006 SETI Explorer Magazine

Forming Planets around Brown Dwarfs

D. Apai, R. Vavrek, 2003, Hungarian Annuals of Astronomy

The Formation of Massive Stars

Recent Talks

Selected Recent Talks

Carnegie Institute Seminars, Washington, Oct 2010, Invited Colloquium

Exploring the Cool Atmospheres of Hot Planets

Volatile Delivery Workshop, Baltimore, Sep 2010, Contributed Talk

The Nitrogen Problem: Constraints on Delivery to Rocky Planets

International Mineralogical Association Meeting, Budapest, Aug 2010, Contributed Talk

A Possible Nitrogen Barrier to Life around Cool Stars

Dust to Rocky Planets, Budapest, Aug 2010, Review Talk

Protoplanetary Disk Evolution and Early Solar System Chronology

Meteoritical Society Meeting, New York, July 2010, Contributed Talk

A Possible Nitrogen Barrier to Life around Cool Stars

Disks, Meteorites, and Planetesimals Workshop, New York, July 2010, Invited Talk

Thermal Processing and Mixing in Protoplanetary Disks

Steward Obs. and LPL Joint Colloquium, Univ. Arizona, Tucson, July 2010, Colloquium

Cool Atmospheres of Hot Planets

Hot Science Talks, STScI, Baltimore, July 2010, Contributed

Cool Atmospheres of Hot Planets

Hakone Workshop, Japan, May 2010, Invited Review

Astronomical Observations of Mixing in Evolving Disks

Japan Geoscience Union Meeting, May 2010, Invited Review

Radial and Vertical Mixing in Protoplanetary Disks: Astronomical Constraints

Astrobiology Science Conference, Texas, April 2010, Talk

Different Initial Conditions for Planet Formation around Cool and Sun-like Stars

Department of Astronomy, Columbia University, Apr 2010, Colloquium

The Formation of Planets around the Sun and Other Stars

Department of Physics and Astronomy, Johns Hopkins Univ., March 2010, seminar

Hot Exoplanets: Eclipse Photometry and Direct Imaging

Astrobio2010, Santiago de Chile, Jan 2010, Invited Talk

The Formation of Habitable Planetary Systems

Exoplanet Club, NASA Goddard Space Flight Center, Nov 2009, Seminar

Gas Giants beyond the Solar System: Direct Imaging and Eclipse Studies

Space Telescope Summer Student Program, Aug 2009, Invited Lecture

The Formation of Stars and Planets: Clues from Astronomy and Meteoritics

Meteoritical Society Workshop, Nancy, France, July 2009, contributed talk

Disks around Cool Stars and Sun-like Stars: Differences in Organic Chemistry

Meteoritical Society Meeting, Nancy, France, July 2009, invited talk

The Evolution of Protoplanetary Dust - The Astrophysical Perspective

Institute of Astronomy, Cambridge University, UK, June 2009

Mini Planetary Systems in the Making: Disks around the Coolest Stars and Brown Dwarfs

Department of Physics, Oxford University, UK, June 2009

Gas Giants Beyond the Solar System: Characterization of Hot Exoplanets

Recent Talks

- Imperial College, London, UK, June 2009, Seminar
Mini Planetary Systems in the Making: Disks around the Coolest Stars and Brown Dwarfs
- Department of Physics and Astronomy, Johns Hopkins University, April 2009, seminar
Thermal Infrared Imaging of Exoplanets
- STScI Public Lectures, 2009, Lecture
Toward Earth's Origins: A Voyage through Astronomy, Meteoritics, and Deserts
- Disks & Exoplanets, Hawaii, Mar 2009, invited talk
High-Contrast Imaging at Long Wavelengths: Surveys for Exoplanets
- ESO Headquarters, Garching, Star-formation Seminar, Feb 2009
The Properties of Protoplanetary Disks as a Function of Stellar Parameters
- Solar-Extrasolar Meeting, NASA Ames Research Center, Feb 2009
Thermal Processing of Planetary Material around Young Stars and the Sun
- Space Telescope Science Institute, Sep 2008, Research Seminar
Thermal Processing of Pre-planetary Materials
- Future of Ground-based Solar System Research, Elba, Sep 2008, Invited Review
Origins of Solar Systems: Planet formation around the Sun and Other Stars
- Vitacura Office, European Southern Observatory, June 2008, Colloquium
Planetary Systems around Cool Stars: Origins and Properties
- Astrobiology Science Conference, Santa Clara, May 2008, Contributed Talk
Planets around Dim Red Stars and a Novel Way of Finding Them
- Institute of Astronomy, ETH Zürich, Mar 2008, Colloquium
Planets around Cool Stars: Origins and Properties
- Physics Department, University of Utah, Salt Lake City, Jan 2008, Colloquium
Planets around Cool Stars: Origins and Properties
- American Astronomical Society Meeting, Austin, Jan 2008, Contributed Talk
Surveying Cool Stars in the Solar Neighborhood for Giant Planets
- Princeton University, Dec 2007, Research Seminar
Planets around Cool Stars: Origins and Properties
- Space Telescope Science Institute, Baltimore, Nov 2007, Colloquium
Planets around Cool Stars: Origins and Properties
- Meteoritical Society Annual Meeting, Tucson, Aug 2007, Contributed talk
Dust Processing and Settling in Brown Dwarf Disks
- Arcetri Astrophysical Observatory, Florence, Italy, June 2007, Colloquium
Exploring Planets around Cool Stars
- Extreme Solar Systems, Santorini, Greece, June 2007, Contributed talk
Planetary Systems around the Coolest Stars: Formation, Properties, and Habitability
- Dept. of Terrestrial Magnetism, Carnegie Inst. of Washington, Jan 2007, Institute Seminar
Planets around Cool Stars: Origins and Properties
- 4th International TPF/DARWIN Workshop, Pasadena, July 2006, Contributed talk
Exploring the Closest Exoplanets through L'-band Angular Differential Imaging
- Cool Stars 14 – Disks around Cool Stars & Brown Dwarfs, Pasadena, 2006, Review Talk
Disk Structure and Mineralogy in Disks around Cool Stars & Brown Dwarfs

Recent Talks

Dust to Planetesimals, Ringberg, Germany, Nov 2006, Contributed talk
Dust Processing in Brown Dwarf Disks