

Ramon Brassler

SUMMARY AND SKILLS

Experienced, highly interdisciplinary candidate with a passion for solar system and extrasolar planet formation and evolution. Able to add a solid understanding of dynamics, planet formation and its linkage with cosmochemistry, geochemistry and geochronology. Capable of adding a vigorous research programme to any working environment. Eloquent, enthusiastic, natural leader who inspires and motivates others. Self-motivated, collaborative team player that demonstrates versatility and adaptability to excel in a fast-changing environment. Takes initiative, quick learner and a high-impact contributor.

RESEARCH INTERESTS AND CORE KNOWLEDGE AREAS

- ✓ Terrestrial and exoplanet formation
- ✓ Fusion of cosmochemistry and dynamics
- ✓ Planetary habitability on long time scales
- ✓ Tidal evolution of planets and satellites
- ✓ Planetary bombardment
- ✓ Isotopic composition of rocky planets
- ✓ Delivery of biogenic materials
- ✓ Time and place of the origin of life

SCIENTIFIC DISCOVERIES

The E-belt is the main source of craters on the Moon and Mars.

Jupiter did not form with pebble accretion unless the protosolar disk had a ring-like structure.

Mars likely formed in or near the asteroid belt.

The Earth's Late Veneer must have consisted of a single large impact rather than an assumed constant stream of planetesimals. This event kickstarted origins of life on our planet.

Mars must have suffered a colossal impact in order to explain its highly siderophile element abundance. Both Earth and Mars underwent such impacts at ca. 4480 Ma.

Jupiter must have scattered/ejected another giant planet of the same size as Uranus or Neptune otherwise the orbits of the terrestrial planets would be far too eccentric.

The Jupiter-Family comets and the Long-Period comets share the same origin. Both the Oort comet cloud and Scattered Disc populations can be explained from a single population that was stirred during an episode of giant planet migration.

The Sun's birth cluster is likely responsible for placing dwarf planet Sedna on its current orbit.

EDUCATION

Ph.D. in Astronomy (Magna Cum Laude)
Tuorla Observatory, University of Turku, Finland

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Supervisors: Dr. Seppo Mikkola and Prof. Mauri Valtonen
Thesis title: *Aspects of Solar System and Three Body Dynamics*

M.Sc. in Astronomy

Astronomical Institute 'Anton Pannekoek', University of Amsterdam, Amsterdam, Netherlands

Supervisors: Dr. Simon Portegies-Zwart and Prof. Huib Henrichs

PUBLICATION AND CITATION INFORMATION

Number of *reviewed* publications as first author since beginning of Ph.D.: 40 (2/yr)

Total *reviewed* publications: 91 (4/yr) (1 in *Nature*, 1 in *Science*, 1 in *Nature Astronomy*)

H-index: 29 (source: NASA ADS)

PROFESSIONAL EXPERIENCE

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|--|-----------|
| Research Fellow (Tenured), Research Centre for Astronomy and Earth Sciences; Budapest, Hungary | 2021+ |
| Research Associate, and Associate Professor, ELSI; Tokyo, Japan Key achievement: Mars formed in the asteroid belt, farther than its current location. This has implications for its volatile budget and biosphere development. | 2014-2020 |
| Visiting Scholar, ASIAA; Taipei, Taiwan Key achievement: The simulated Oort cloud to Scattered Disc population ratio is 13, in accordance with observations from long-period and short-period comets. | 2011-2014 |
| Helmholtz Alliance post-doc at Observatoire de la Côte d'Azur; Nice, France Employer: <i>Dr. Alessandro Morbidelli</i> Key achievement: The late migration of the giant planets had to occur through mutual scattering rather than the clearing of nearby small bodies. | 2008-2011 |
| Post-doc University of Toronto at Scarborough; Toronto, Canada Employer: <i>Prof. Pawel Artymowicz</i> Key achievement: The Oort comet cloud formed in two stages; one when the Sun was in its birth cluster and the second came 500 Myr later. | 2007-2008 |
| CITA National Fellow at Queen's University; Kingston, Canada Employer: <i>Prof. Martin Duncan</i> Key achievement: The origin of the distant dwarf planet Sedna is the result of a close stellar encounter while the Sun was in its birth cluster. | 2004-2007 |
| Post-doc at York University; Toronto, Canada Employer: <i>Prof. Kimmo Innanen</i> Key achievement: All the terrestrial planets have temporary co-orbital asteroids. | 2003-2004 |

SABBATICALS

Department of Geological Sciences, University of Colorado, Boulder. 2018-2019
Collaborator: Stephen J. Mojzsis

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GRANTS AND FELLOWSHIP AWARDS

| | |
|---|-----------|
| JSPS Shingakujutsu Kobo (JPN) JPY 1,900,000 | 2019-2020 |
| JSPS Fund for International Collaboration (JPN) JPY 5,200,000 | 2018 |
| ELSI Director's Fund (JPN) JPY 520,000 | 2016 |
| JSPS Kakenhi Grand-in-aid for Young Researchers (JPN) JPY 4,030,000 | 2016-2018 |
| Daiwa Anglo-Japanese foundation (GBR) GBP 5000 | 2016 |
| NINS Astrobiology consortium (JPN) JPY 650,000 | 2015 |
| CITA National Fellowship (CAN) CAD 50,000 | 2005 |
| CIMO Fellowship (FIN) EUR 8073 | 2002 |
| Yrjö Väisälä foundation (FIN) EUR 9100 | 2002 |

SUPERVISORY ROLES AND TEACHING EXPERIENCE

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| ELSI Ph.D. student (Tokyo, Japan) | 3 | 2016+ |
| ELSI M.Sc. Student (Tokyo, Japan) | 1 | 2019+ |
| Tokyo Tech Master student (co-supervision) | 1 | 2017-2018 |
| ASIAA Summer students (Taipei, Taiwan) | 2 | 2012 & 2013 |

| Class taught | Level | Year |
|-----------------------------|---------------|--------------------------------|
| Introduction to Planetology | Graduate | 2017 |
| Planetary Science I | Graduate | 2018 |
| From Planets to Cells | Undergraduate | 2020, 2022 (IISER Pune, India) |

ORGANISATION OF SCIENTIFIC MEETINGS AND CONFERENCE SESSIONS

- The First 100 million years of the Solar System (2013). ASIAA, Taiwan
- The Fourth ELSI Symposium (2016). ELSI, Japan
- Before the Moon (2016). ELSI, Japan
- Puzzles and Solutions in Astrobiology (2018). ELSI, Japan
- EGU 2018: Accretion, Differentiation and Volatiles: constraints on terrestrial planets
- AOGS 2018: From Dust to Planets: the First Hundred Million Years of the Solar System
- Goldschmidt 2018: The Chemistry, Observations, and Modelling of Planetary Assembly
- Rencontres du Viet Nam – Planets: The Young Solar system (upcoming 2022).

INVITED PRESENTATIONS

- Molecular Origins of Life Munich: Colossal events in late accretion: A kick-start to the

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- origins of life on Earth? (Munch, Germany)
- The Origins Of Life: A Public Dialog to Discover New Solutions to Old Questions (Atlanta, GA, US)
- Reading Terrestrial Planet Evolution in Isotopes and Element Measurements (Bern, CH)
- Asia Oceania Geosciences Society (AOGS) Annual meeting (Singapore)
- Rencontres du Vietnam - Search for life: from early Earth to exoplanets (Quy Nhon, VN)
- International Workshop on Comets (Paris, FR)
- Comets and the Late Heavy Bombardment (Gdynia, PL)
- 5th Subaru conference: Exoplanets and disks (Kona, HI, US)
- 1st COSPAR Symposium (Bangkok, TH)
- Dynamics and Formation of the Oort cloud (Lille, FR)
- Quantifying the Martian geological reservoirs (Bern, CH)

Further contributions: Solar System symposium in Sapporo (3 times), DPS meeting (7 times), Goldschmidt (twice), DDA (3 times), CASCA (3 times), IAU Symposium 310 Complex Planetary Systems 2014 (Namur, BE).

COMMISSIONS OF TRUST AND PROFESSIONAL SERVICES

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|---|------------------------|
| External Reviewer for NASA | 2007, 2008, 2010, 2014 |
| External Reviewer for Austria's FWF | 2013 |
| External Reviewer for Chile's FONDECYT | 2016 |
| Panel member, NASA's OPR, Washington, DC, USA | 2009 |
| External Reviewer for Subaru Telescope | 2017, 2019 |

Reviewer for international peer-reviewed journals Nature, Nature Geoscience, Astronomy & Astrophysics, Celestial Mechanics and Dynamical Astronomy, Earth and Planetary Science Letters, Icarus, Monthly Notices of the Royal Astronomical Society, The Astronomical Journal and The Astrophysical Journal.

COMMUNICATION AND PRESS

Gave interviews for: BBC (UK), Nature News (UK), Science et Vie (France), Ciel et Espace (France), Taiwan Television (Taiwan), NHK (Japan), Nautilus Magazine (USA), The Register (UK).

MEMBERSHIPS OF PROFESSIONAL SCIENTIFIC SOCIETIES

- Geochemical Society
- Asia Oceania Geosciences Society

MANAGERIAL EXPERIENCE AND INSTITUTIONAL CONTRIBUTIONS

- Organisation of seminars and workshops (2013, 2016, 2018, 2022)

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- Deployment and maintenance of computational infrastructure (HTCondor)
- Hosted internal meetings to increase success of external funding

COMPUTING AND TECHNICAL SKILLS

Advanced knowledge of Linux, FORTRAN 77 (SWIFT, SyMBA and MERCURY); basic knowledge of ANSI C, CUDA and Python, advanced bash shell scripting. Intermediate knowledge of computer networking skills. Excellent at solving many computer technology related problems. Experience with setting up and managing an HTCondor high-throughput computing cluster.

LANGUAGE SKILLS

Fluent Oral and Written: **English (UK) • Dutch**
Conversational: **Spanish • French • Mandarin Chinese** (Traditional)
Basic: **German • Hungarian • Hindi**

PERSONALITY TRAITS

Enneagram: 2/3/7 (Helper/Achiever/Enthusiast)
Meyers-Briggs: INFP (Introverted/Intuitive/Feeling/Perceiving)
Belbin's Team roles: Shaper/Implementor/Coordinator

CHARACTER REFERENCES

Stephen J. Mojzsis
Origins Research Institute
Budapest, Hungary
stephen.mojzsis@csfk.org

Stephanie C. Werner
University of Oslo
Oslo, Norway
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Alessandro Morbidelli
Observatoire de la
Côte d'Azur
Nice, France
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George Helffrich
Earth Life Science
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Tokyo, Japan
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