

Dr. Vlada Stamenković

Dr. Vlada Stamenković | Jet Propulsion Laboratory cell. +1.626.390.7631 | Email. Vlada.Stamenkovic@jpl.nasa.gov web. HabiLabs.com | Instagram & Twitter. #newmarsu

"An astrobiologist at heart, with tools of a physicist, engineer and mission developer at hand — working to help us find life in the solar system and make us live between the stars."

ΕN	<u>IPLOYMENT</u>		
•	Research Scientist	01/2018 - now	
	NASA Jet Propulsion Laboratory (JPL)		
	\Rightarrow PI for TH ₂ OR (Liquid water sounder) technology development		
	$\Rightarrow~$ Lead scientist for Mars Small Spacecraft Advanced Concepts		
	\Rightarrow Lead scientist for ASGARD Mars Deep Drill Advanced Concepts		
•	Research Staff Scientist	09/2017-01/2018	
	California Institute of Technology - GPS		
•	Simons Foundation's Collaboration on the Origins of Life Fellow	08/2015-09/2017	
	Postdoctoral Scholar in Geobiology & JPL Research Associate		
	California Institute of Technology & NASA Jet Propulsion Laboratory (JPL)		
•	Swiss National Science Foundation Postdoctoral Fellow	2012-07/2015	
	MIT – Department of Earth, Atmospheric & Planetary Sciences		
•	European Space Agency (ESA) Graduate Student Fellow	2008-2012	
	Institute of Planetary Research @ the German Aerospace Center (DLR)		
	European Space Research and Technology Center (ESTEC)		
-	Visiting Scientist	2007-2008	
	Institute of Planetary Research @ German Aerospace Center		
ED	DUCATION		
•	PhD in Earth & Planetary Sciences (<i>Dr. rer. nat., summa cum laude, 0.0</i>)	01/13/2012	
	The University of Münster, ESA & Institute of Planetary Research @ DLR		
	Dissertation: High-pressure thermal & transport properties of mantle rock & t	the thermal evolution of	
	massive rocky planets. Advisors: Tilman Spohn & Doris Breuer.		
•	BSc/MSc in Physics (Dipl. Phys. ETH), Swiss Federal Institute of Technology (ETH) 2006	
	Thesis: Dynamical analysis of generic signal transduction networks. Advisor: S	Sebastian Bonhoeffer	
SELECTED HONORS & AWARDS			
-	Vouager Award (by IRI Mars Exploration Directorate)	2010	





-	Nobel Laureate Symposium Award by German Aerospace Center	2009	
	European Space Agency & German Space Agency Doctoral Fellowship	2008-2012	
ΡI	on flown missions and currently studied mission proposals		
•	PI for Microgravity experiment Lidia on parabolic flight campaign	2000-2001	
•	PI for the space experiment Chondro I on the Russian Foton M1 Science satellite	2000-2001	
•	PI for the space experiment Chondro II on the crewed Cervantes Mission	2003-2006	
	to the International Space Station (ISS)		
•	PI for the VALKYRIE proposal	2019-now	
	(Volatiles And Life: KeY Reconnaissance & In-situ Exploration)		
	 Mission proposal funded internally for further studies and development at JPL. 		
	 Subsurface habitability and life search mission concept for Mars. 		
•	PI for the TH ₂ OR/LOKI mission proposals	2020-now	
	(Transmissive H ₂ O Reconnaissance/Localizing Organic Key Ingredients)		
	 Liquid water sounder mission concepts. 		
	• Currently studied at JPL for potential implementation in Simplex, Discovery or New F	Frontiers.	
<u>FU</u>	NDED GRANTS AND PROPOSALS		
•	Mars Subsurface Exploration Initiative TH ₂ OR Task (PI TH₂OR ~\$1.7 Million)	2018-2021	
	CIFAR Fellow (PI, \$25 k/year)	2019-2024	
•	TRAPPIST 1 System about of IN/ST (Science PI \$21 k)	2018-2010	
•	Simons Foundation's Collaboration on the Origin of Life Fellowship (PI, \$342 k)	2018-2019	
Life from inside out – geodynamic drivers for the origins of life.			
•	Swiss National Science Foundation Advanced Researcher Fellowship (PI, \$100 k)	2014-2015	
	The Caladan-Dune project – deep water cycle and planet evolution.		
•	Swiss National Science Foundation Prospective Researcher Fellowship (PI, \$90 k)	2012-2014	
_	<i>Planetary geofluxes with importance to the question of life</i> – <i>geophysical biosignature gases.</i>		
•	Kepler: GU Cycle 5 (on ultra-cool stars) (Co-I)	2013	
_	Searching for terrestrial planets orbiting cool stars and brown dwarfs with K2.	2012	
•	Spitzer: Cycle-9 (Co-I , 55 k)	2013	
	55 Chc e phase curve – first heat map of an exoplanet.		
•	European Space Agency & German Space Agency PhD Fellowship (PI , \$180 k)	2008-2012	
	High pressure physics and planet evolution/Zones of extinct and extant life on Mars –	l) developing	
	thermal and transport properties for mantle rock from basic physical principles up to	o 1 TPa and	
	implications for the evolution of Earth and other rocky planets. II) Landing site selection v	vith focus on	
	extinct or extant life on Mars for ExoMars.		
•	Space experiment Chondro II on Cervantes Mission to ISS (Science PI, ~ \$5 Million)	2003-2006	
	Chondro II – tissue engineering/fluid mixing on the International Space Station to improve cartilage		
	transplants and explore fluid dynamics and cellular matrix formation in microgravity.		

Space experiment Chondro I (Science PI, ~ \$5 Million) 2001-2002
 Chondro I – tissue engineering/fluid mixing on the Russian space satellite Foton M1 to improve cartilage transplants and explore fluid dynamics and cellular matrix formation in microgravity.



Microgravity experiment Lidia on parabolic flights (PI, ~ \$20 k)
 Lidia – fluid dynamics in test units for T-lymphocyte apoptosis studies in microgravity.

2000-2001

PUBLICATION LIST

<u>Published</u>

1. Stamenković, V., et al., 2019. The next frontier in planetary and human exploration, *Nature Astronomy 3, 116-120*.

Find on: https://doi.org/10.1038/s41550-018-0676-9

- Lewis, W., Stamenković, V., Mischna, M., Fischer, W., 2019. Follow the oxygen: comparative histories of planetary oxygenation and opportunities for aerobic Life. *Astrobiology*, 19. *Find on: https://www.liebertpub.com/doi/abs/10.1089/ast.2017.1779*
- 3. Airapetian, V. et al. (incl. **Stamenković, V**.), 2019. International Journal of Astrobiology, 1-59. *Find on: https://doi.org/10.1017/S1473550419000132*
- Stamenković, V., Lewis, W., Mischna, M., Fischer, W., 2018. O₂ solubility in Martian near-surface brines and implications for aerobic life. *Nature Geoscience* 11, 905-909. <u>Cover page</u> of the Dec 2018 Edition.

Find on: https://rdcu.be/9PhL

- Yung, Y., et al. (incl. Stamenković, V.), 2018. Methane on Mars and Habitability: Challenges and Responses. Astrobiology, 18, doi: 10.1089/ast.2018.1917. <u>Cover page.</u> Find on http://bit.ly/2ChT6B7
- De Wit, J., et al. (incl. Stamenković, V.), 2018. Atmospheric reconnaissance of TRAPPIST-1's Habitable Zone Exoplanets. *Nature Astronomy*, doi:10.1038/s41550-017-0374-z *Find on: https://www.nature.com/articles/s41550-017-0374-z*
- Bourrier, V., de Wit, J., Bolmont, E., Stamenković, V., + 12 co-authors, 2017. Temporal Evolution of the High-energy Irradiation and Water Content of TRAPPIST-1 Exoplanets. *The Astronomical Journal*, 154, 121-137.

Find on: http://iopscience.iop.org/article/10.3847/1538-3881/aa859c

- Stamenković, V., Höink, T., Lenardic, T., 2016. The importance of temporal stress variation for the initiation of plate tectonics. *JGR Planets*, 121, 1–20. *Find on: http://onlinelibrary.wiley.com/doi/10.1002/2016JE004994/abstract*
- 9. Stamenković, V., Seager, S., 2016. Emerging possibilities and insuperable limitations of exogeodynamics: the example of plate tectonics. *The Astrophysical Journal*, 825, 78-95. *Find on: http://dx.doi.org/10.3847/0004-637X/825/1/78*
- Demory, B., (incl. Stamenković, V.), 2016. A map of the large day–night temperature gradient of a super-Earth exoplanet. *Nature* 532, 207-209. *Find on: http://www.nature.com/nature/journal/v532/n7598/abs/nature17169.html*
- Stamenković, V., 2011, 2015. Serpentinization (Mars). In: Gargaud, M., et al., (Eds.), Encyclopedia of Astrobiology, Part 19. Springer, 1505-1506. *Find on: http://www.springer.com/us/book/9783662441848*
- 12. **Stamenković, V.,** Frank, S., 2011, 2015. Rheology of planetary interiors. In: Gargaud, M., et al., (Eds.), Encyclopedia of Astrobiology, Part 19. Springer, 1452-1455. *Find on: http://www.springer.com/us/book/9783662441848*
- *13.* **Stamenković, V.**, Breuer, D., 2014. The tectonic mode of rocky planets, Part 1: driving factors, models & parameters. *Icarus* 234, 174-193.



Find on: http://www.sciencedirect.com/science/article/pii/S0019103514000736

- Zsom, A., Seager, S., De Wit, J., Stamenković, V., 2013. Towards the minimum inner edge distance of the habitable zone. *The Astrophysical Journal*, 778, 109-126. *Find on: http://iopscience.iop.org/article/10.1088/0004-637X/778/2/109*
- 15. **Stamenković, V.**, Noack, L., Breuer, D., Spohn, T., 2012. The influence of pressure-dependent viscosity on the thermal evolution of super-Earths. *The Astrophysical Journal*, 748, 41-63. *Find on: http://iopscience.iop.org/article/10.1088/0004-637X/748/1/41*
- 16. Stamenković, V., Breuer, D., Spohn, T., 2011. Thermal and transport properties of mantle rock at high pressure: applications to super-Earths. *Icarus*, 216, 572–596. *Find on: http://www.sciencedirect.com/science/article/pii/S0019103511003824*
- 17. **Stamenković, V.**, Keller, G., Nesic, D., Cogoli, A., Grogan, S.P., 2010. Neocartilage formation in 1 g, simulated, and microgravity environments: implications for tissue engineering. *Tissue Engineering*: part A, 16 (5), 1729-1736.

Find on: http://online.liebertpub.com/doi/abs/10.1089/ten.tea.2008.0624

Selected Conference Proceedings

- Sohl, F., Noack, L., Stamenković, V., Breuer, D., Wagner, F.W., 2010. Thermal state of Earth-like exoplanets: Implications for CoRoT-7b. In: Eos Trans. AGU, 91 (26). The Meeting of the Americas, 8-12 Aug. 2010, Brazil.
- 19. **Stamenković, V.**, & Breuer, D., 2009. Hades: Habitability of the deep subsurface, In: Origins of Life and Evolution of Biospheres, Springer.

Technology Publications

- 20. Stamenković, V., & Keller, G., 2003. CHONDRO, ESA Erasmus Experiment Archive.
- 21. Keller, G., & **Stamenković, V.**, 2002. Study of the process of cartilage structure formation in microgravity, ESA Erasmus Experiment Archive.
- 22. **Stamenković, V.**, Keller, G., Walser, S., Fuchsberger, G., 2001. LYMPHOSIG LIDIA3 Hardware test and behavior of two fluids mixing for T-Lymphocyte investigation on MASER, ESA Erasmus Experiment Archive.

SELECTED INVITED DEPARTMENT COLLOQUIA & SEMINARS

- Brown University, Department Colloquium Earth and Planetary Sciences, 2019.
- ELSI, Tokyo, 2019.
- MIT, EAPS, Origins Seminar, February 2, 2018.
- Scripps Institute of Oceanography, Institute of Geophysics, Departmental Seminar, Dec 1, 2017.
- Jet Propulsion Laboratory, Planetary Seminar, May 15, 2017.
- University of Cambridge, Cambridge UK, February 26-March 3, 2017
- University of Southern California, Los Angeles, March 8, 2017
- University of California in Los Angeles, Los Angeles, March 14, 2017
- University of California in Davis, Earth & Planetary Sciences Department Seminar Series, 2017
- NASA Goddard, Planetary Seminar, 2016
- University of California in Los Angeles, Center for Planets iPLEX, 2016
- Tokyo Institute of Technology, ELSI Seminar, 2016
- Massachusetts Institute of Technology, PICS Seminar, 2015
- California Institute of Technology, GPS, Yuk Yung Seminar, 2015



- NASA Jet Propulsion Laboratories, Planet Seminar, 2015
- Harvard University, Center for Astrophysics, 2014
- California Institute of Technology, GPS, Yuk Yung Seminar, 2013
- University of California in Los Angeles, Department of Earth and Planetary Sciences, 2013
- Berkeley University, Departments of Earth & Planetary Sciences and Astronomy, 2013

SELECTED INVITED CONFERENCE/WORKSHOP PRESENTATIONS

- Stamenković, V., 2020. INVITED, COSPAR, Sydney, 2020.
- Stamenković, V., 2020. INVITED, JpGU-AGU, Tokyo, 2020.
- Stamenković, V., 2018. INVITED KEYNOTE. Mars Society Convention, Pasadena, Aug 7-9, 2018.
- Stamenković, V., 2018. *INVITED*. CIFAR-Canadian Institute for Advanced Research: Earth 4D, Toronto, Aug 23-26, 2018.
- Stamenković, V., 2018. *INVITED*. Workshop in Geology and Geophysics of the Solar System, Petnica, Serbia, June 22-July 1, 2018.
- Stamenković, V., 2018. *INVITED*. KISS Workshop on Mars Subsurface Exploration, Pasadena, Feb 12-16, 2018.
- Stamenković, V., 2017. INVITED. CIFAR Research Workshop- Earth 3D Subsurface Science and Exploration, Toronto, Canada, December 4-8, 2017.
- Stamenković, V., 2016. *INVITED*. Impact of planetary space weather on climate and habitability, New Orleans, USA.
- Stamenković, V., 2015 & 2016. INVITED. Keck Institute for Space Studies, Methane on Mars, Pasadena, USA.
- Stamenković, V., 2015. INVITED KEYNOTE, Space Vision SEDS, Boston, USA.
- Stamenković, V., 2015. INVITED KEYNOTE. GeoBerlin: 100 Years of Plate Tectonics, Berlin, Germany.
- Stamenković, V., 2015. INVITED. Early Earth Dynamo, Kawaguchiko Lake, Japan.
- Stamenković, V., Höink, Tobias, Lenardic, A., 2015. *INVITED*. Spring AGU, Montreal, Canada.
- Breuer, D., Stamenković, V., 2012. INVITED. European Geosciences Union, Vienna, Austria.
- Stamenković, V., 2011. INVITED. Astron. Society Meeting, Max Planck Institute, Heidelberg, Germany.
- Stamenković, V., 2010. *INVITED*. Astrobiology Graduate Student Conference, Tällberg, Sweden.
- Stamenković, V., & Keller, G., 2004. *INVITED*. International Astronautical Congress, Vancouver, Canada.

SELECTED RECENT PUBLIC SPEACHES OR SCIENCE SHOWS

- The WALRUS Survival Talk: https://www.youtube.com/watch?v=26yGTy7_F4o
- SciShow Space: https://www.youtube.com/watch?v=Dg3dIhevnhU&t=1s
- Mars Society Convention: https://www.youtube.com/watch?v=LYcmcxSsGEc&t=1378s
- MIT Origin of Life Series: https://www.youtube.com/watch?v=cBTPYSaW8Fs

TEACHING & MENTORING EXPERIENCE

- Advisor to students at JPL working on TH₂OR & groundwater modeling
 SURP (Strategic University Research Partnership @ JPL)
 Lecturer, Workshop in Geology and Geophysics of the Solar System, Petnica, Serbia
 Research Co-adviser, MIT, Caltech, and JPL
 Main Instructor for new MIT/Harvard class, MIT
 Fall 2014
- Mentoring graduate and undergraduate students, DLR Berlin

2008-2012

•	Teaching Assistant, ETH Zurich	2003-2004
•	Teaching high school students physics and astronomy	1996-2000

PROFESSIONAL SOCIETIES

- Elected Fellow of the Canadian Institute for Advanced Research.
- Member of the American Geophysical Union (AGU), the AAS Division for Planetary Sciences (DPS), and the American Astronomical Society (AAS).

SERVICE ACTIVITIES

- Lead for the New Mars Underground, which resulted in the last two years in one KISS workshop, two AGU sessions (with over 82 abstracts), two ISSI (International Space Science Institute) Working Groups [which will for the first time bring NASA, ESA and the Chinese Space Program together on a multilateral basis], one NAI Workshop Without Walls series, and White papers to be submitted to the Planetary Decadal in 2020.
- ISSI Working Group Lead between NASA, ESA, and the Chinese Space Program on a multi-lateral basis for subsurface exploration (Meetings to be held in 2020 and 2021 in Bern and Beijing).
- Lead for Science for Small Spacecraft development at JPL for the Mars Exploration Directorate.
- Reviewer for Nature Geoscience; Nature Astronomy; Scientific Reports; Icarus; Earth and Planetary Science Letters; PEPI; G-Cubed, Elsevier Books, and Springer Books amongst others.
- Panelist in various NASA's NESSF Geophysics, NASA XRP, and NASA Technology Development Programs.

LANGUAGE SKILLS (SPOKEN & READING)

Native Tongue: Fluent in: Good skills in: Serbian, German, and Swiss-German English and French Italian, Russian and Dutch

