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# Arya Udry receives the 2021 Paul Niggli Medal



The Paul Niggli Medal is Switzerland's most prestigious award for young earth scientists who made outstanding contributions in the research fields of mineralogy, geochemistry, petrology, resource geology or solid-earth geophysics. The Paul Niggli Medal honours and supports young ambassadors of Swiss geoscience, who are either Swiss citizens or obtained at least two of their academic degrees in the Swiss university system (BSc or MSc and usually their PhD).

The Board of the Paul Niggli Foundation decided, in their session of 4 June 2021, to award the Paul Niggli Medal for the year 2021 to Arya Udry, in recognition of her innovative research in the field of igneous petrology, geochemistry and thermodynamic modeling of Martian meteorites to understand planetary igneous differentiation processes.

*Maria Schönbächler (ETH Zürich)*

*On behalf of the Foundation Council of the Paul Niggli Stiftung*

## 1 Citation

It is a great pleasure to introduce Arya Udry, the 2021 Niggli medalist, who left Switzerland more than 10 years ago, to become a Mars Scientist. The Niggli medal awarded to Arya Udry is a reconnaissance of her work and professional career and reflects the excellence she has achieved in unraveling igneous processes on rocky planets, in particular on Mars. Probably inspired by the Star-Mars stories, she was not afraid to invest and work hard to achieve her preferred subject—Planet Mars.

There are only a little more than 150 of known meteorite samples from Mars to date, and she has contributed significant papers on the petrology and geochemistry on Martian meteorites.

Arya did her undergraduate and Master studies at the University of Lausanne, focusing on her 2nd passion, namely rocks with beautiful garnet. She worked with me on the petrology and geochronology of Archean Gneisses in the Lewisian in Northern Scotland. But this was a petrological excuse, so to speak, to be prepared for her 1st passion and dream, to work on Martian meteorites. Her career path is incredibly fast. After her ELSTE Masters in 2010, she was accepted for a PhD at Knoxville (TN) in the US under the supervision of Hap McSween, on 'exploring Martian magmas from the mantle to the regolith'. She finished her PhD in 2014 and was directly hired as an assistant professor at the age of 26! In retrospect, no wonder that during field work some 6 years earlier, she was not allowed to drink a beer with me in a pub in Scotland!

She built a planetary petrology lab and research group there and became tenured professor in 2020. Since 2020, she is a member of the Mars 2020 (Perseverance Rover) Team. The readiness to combine 'remote geochemistry' with established petrological methods to study the geology of the red planet illustrates a real strength of Arya's scientific work. In just a few short years, Arya Udry has become one of the most influential investigators of Martian meteorites. To cite a statement from the support letters: 'Her research exemplifies the excellence that is recognized by the Niggli Medal'. Rather remarkably, she and collaborators wrote a review on Martian meteorites in 2020 that clearly laid out her visions for the future science of this fascinating planet. Her academic career will

continue in the US and she plays a vital role in planning and working on sample return missions from Mars.

On behalf of the scientists that supported the nomination, I would like to congratulate Arya Udry to her achievements and the Paul Niggli medal, and to her flagship role as a Swiss ambassador of meteorite petrology science, and wish her all the best for her future career.

*Othmar Müntener (University of Lausanne)*

## 2 Response

I am extremely honoured to be the recipient of the Paul Niggli 2021 award. I would like to thank the committee and the person who nominated me.

I started my career in geology with the goal of becoming of planetary scientist. Growing up, I was always interested in space. Those interests led me to pursue a Geosciences Bachelor at the University of Lausanne, where I fell in love with petrology, as I found both igneous and metamorphic processes fascinating. That Arya would have never imagined that 16 years later, I would be working on the Mars2020 Perseverance and be an expert in martian petrology. The scholar I am today is in part possible due to the many people who have supported and helped me in my research/academic journey.

Of these many people worthy of my thanks, I first would like to thank my Master thesis advisor, Othmar Müntener, who allowed me to work independently on amazing Scottish rocks, so I could gain confidence in myself as a petrologist. He also helped me to learn many techniques in petrology that I still use today, including petrography, microprobe, and laser analyses. In addition to Othmar's guidance, I am also very thankful for the excellent geoscience education I received at University of Lausanne.

After my Master thesis with Othmar, I decided to move to the United States to pursue my Ph.D. on martian meteorites at the University of Tennessee. As you might imagine, such a transition from Switzerland to the US was not always smooth, but I had support from friends/family/colleagues., including the students in my class (Caro, Florence, Alessia but also Melanie and Loyc, amongst others), who helped me make the move. While I loved my experiences at the University of Lausanne, I wanted to move to Tennessee to finally study martian rocks.

At Tennessee, I was lucky to work with my Ph.D. advisor Hap McSween. I want to thank Hap for allowing me to work on martian samples, which was my dream growing up. From Switzerland to the United States and now to Mars, my education and mentors have taken me to many amazing places. For me, Hap provided great advising and continuous support in my pursuit of a career in martian petrology research.

In addition to my formal mentors, I could not have been successful without all of my friends and colleagues in the planetary science community throughout these past 11 years. Mentors are often the ones who provide guidance, advice, direction, and support, but I've been lucky to also have a network of friends and colleagues who support me as well. I am really thankful for these collaborations because they provide opportunities to discuss science and new topics, which is part of the scientific process. These informal networks have also given me comfort and friendship in the sometimes cold, distant, and treacherous world of academia. It is much like Mars in that sense! These life-long friendships have been so important to me, especially the female role models who inspired me to see myself as belonging in geosciences and petrology research.

Outside of my academic community, I would like to thank my family, who has been supportive from the beginning, even when I told them that I was moving on the other side of the planet at 22 and would eventually settle in Las Vegas, Nevada. I also want to thank my friends outside of academia who have always been there for me, even on the other side of the world.

As I reflected on this award and wrote this speech, I am truly humbled by the many people who have supported me in my endeavors, and I thank all of you for helping me become the geoscientist I am today. We are stronger when we work together, involve all voices in science, and create a welcoming, supportive community.

*Arya Udry (University of Nevada)*

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