



Prix Schläfli

Physics 2025

Laudatio for the Award Ceremony of the **Prix Schläfli Physics 2025** of the Swiss Academy of Sciences (SCNAT) for **Dr Martin F. Sarott**

The Jury of the Prix Schläfli 2025 Physics of the Swiss Academy of Sciences (SCNAT), consisting of Professors Teresa Montaruli (University of Geneva), Ernst Meyer (University of Basel), Julian Sonner (University of Geneva), and Lesya Shchutka (EPFL), has evaluated several excellent applications of brilliant candidates.

The jury decided unanimously to award the Prix Schläfli in Physics 2025 to Martin F. Sarott for his pioneering work and outstanding results in the domain of active optical control of the polarization in ferroelectric thin films.

Martin F. Sarott demonstrated that UV light can be used to enhance or suppress ferroelectric polarization, employing techniques such as structural characterization, scanning probe microscopy, and linear optical spectroscopy. The committee recognizes the relevance of this work for opening new avenues in the field of oxide electronics.

This research is particularly significant because it introduces a novel method for optical control of ferroelectric polarization – potentially without the need for electrodes – via a universal mechanism involving Schottky junctions. This innovation could have a broad impact on the development of novel optoelectronic and sensing devices, including ferroelectric devices for oxide electronics, memory technologies, low-power electronics, photodetectors, and adaptive materials. His work establishes a generalizable Schottky-barrier-based mechanism for manipulating ferroelectric polarization across a wide range of ferroelectric materials.

The results of this work are published in:

Sarott MF, Müller MJ, Lehmann J, Burgat BJ, Fiebig M, Trassin M (2024) Reversible optical control of polarization in epitaxial ferroelectric thin films, *Advanced Materials* 36, 2312437.

Martin F. Sarott obtained his BSc in Physics at ETH Zurich with a thesis titled Heterostructured 2D dopamine coated MoS₂/reduced graphene oxide nanocomposite aerogels as anode for advanced lithium ion batteries, followed by an MSc on Synthesis and characterization of lead chalcogenide nanocrystals for short wavelength infrared photodetectors, also at ETH Zurich. He earned his PhD in Materials Science at ETH Zurich under the supervision of Prof. M. Fiebig and Prof. M. Trassin in August 2023. He is currently a postdoctoral researcher at the Zernike Institute for Advanced Materials at the University of Groningen.

Prof. Teresa Montaruli, president of the Prix Schläfli Physics 2025 jury
Award ceremony, Lausanne, 4 September 2025