



## PHYSIKALISCHES KOLLOQUIUM

*Referent:* **Prof. Dr. Jan Seidel**  
School of Materials Science and Engineering,  
UNSW Sydney,  
Sydney, Australia



*Thema:* **Topological structures in ferroic materials as nanoscale functional elements**

*Zeit und Ort:* Dienstag, 25.6.2019, 16:40 Uhr  
Recknagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

*Leiter:* Prof. Dr. Lukas M. Eng

*Kurzfassung:* Topological structures in ferroic functional materials, such as domain walls and skyrmions, currently see an increased attention due to their intriguing properties and application potential in nanoelectronics [1]. I will discuss some of our recent results on ferroelastic, ferroelectric and multiferroic materials systems [2, 3, 4, 5, 6] using scanning probe microscopy as the main investigative tool, which is combined with insight from electron microscopy and *ab-initio* theory, and then discuss future prospects of this quickly evolving research field.

- [1] J. Seidel (ed.), *Topological structures in ferroic materials: domain walls, skyrmions and vortices*, ISBN: 978-3-319-25299-5, Springer, Berlin (2016)
- [2] P. Sharma, et al., *Science Advances* **3**, e1700512 (2017)
- [3] G. Vats, et al., *Advanced Optical Materials*, in print (2019)
- [4] P. Sharma, et al., *Advanced Functional Materials* **29**, 1807523 (2019)
- [5] D. Kim et al., *Nature Communications* **10**, 444 (2019)
- [6] J. Seidel, *Nature Materials* **18**, 188 (2019)

*Biographie:* Prof. Jan Seidel at the School of Materials Science and Engineering at UNSW Sydney is working in the field of transition metal oxides, nanomaterials, and advanced scanning probe microscopy characterization, with a focus on fundamental electronic, optical and magnetic properties of interfaces and topological structures. He received his doctorate in physics from TU Dresden and was a postdoctoral fellow at UC Berkeley and Lawrence Berkeley National Laboratory, before then joining UNSW Sydney. He has held various fellowships throughout his career, including an ARC Future Fellowship, a Feodor Lynen Research Fellowship from the Alexander von Humboldt Foundation, an Endeavour Executive Fellowship from the Australian Government, and Visiting Fellowships at the University of Oxford's Materials Department and St. Catherine's College.

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