



# Special Colloquium Announcement

of the Collaborative Research Centre 951

“Hybrid Inorganic/Organic Systems for Opto-Electronics”

## Milos Toth

School of Mathematical and Physical Sciences, University of Technology Sydney, Australia

## Nanophotonics with hexagonal boron nitride

Time: Wednesday, March 27, 2019, **11:00**

Place: IRIS Adlershof, Zum Großen Windkanal 6,  
Room 007 (ground floor).



Collaborative Research Centre 951  
Department of Physics  
Humboldt-University of Berlin

Email: [sfb951@physik.hu-berlin.de](mailto:sfb951@physik.hu-berlin.de)  
Tel.: +49 30 2093 66374  
[www.physik.hu-berlin.de/sfb951](http://www.physik.hu-berlin.de/sfb951)

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# **Nanophotonics with hexagonal boron nitride**

**Milos Toth**

*School of Mathematical and Physical Sciences, University of Technology Sydney, Australia*

The wide bandgap van der Waals material hexagonal boron nitride (hBN) has emerged as a promising host of single photon emitters. Here, I will review progress that has been made in understanding the photophysical and chemical properties of these emitters, as well as functional properties that make the system appealing for integrated quantum photonics. I will also present recent demonstrations of coupling of the emitters to waveguides and resonators, and techniques that have been developed to grow hBN, fabricate the emitters, tune their emission wavelengths and fabricate monolithic dielectric optical cavities from hBN. Finally, I will show that hBN emitters have nonlinear optical properties which make them suitable for applications beyond quantum photonics, such as markers for super-resolution imaging and sensors for nanothermometry.