

# Chemical Coding at the Atomic Scale:

## Designing Hybrid and Quantum Nanostructures for Applications in Optical Biosensing, Light Harvesting, Chiral Catalysis, and More

### International Workshop 19 - 23 August 2024

Why Chemical Coding? Chemical coding refers to tailoring the functionality of a material at the atomic level. It is critical for innumerable materials technologies including, for example, semiconductor heterostructures for electronics and optoelectronics (e.g. GaAs-AlAs, GaN-InGaN, Si-SiO<sub>2</sub>), the development of drugs and bio-testing systems (e.g. antigen gold-nanoparticle strips for Covid 2019 virus detection), and many others. We will bring together world experts on the physical and chemical properties of nanomaterials, with a focus on their optical and quantum properties, as well as many young promising researchers.

#### Topics

- Physical properties of nanocrystals with the structure controlled at the atomic level
- Multi-component nanoscale objects assembled using bio-coding
- Many-body interactions between building blocks in such assemblies
- Resulting optical, light-harvesting, and sensor applications
- Chiral nanocrystals for biosensing
- Theoretical models including a wide spectrum of theoretical methods

#### Invited speakers (incomplete)

N. Bigall (DE)  
 X.-W. Chen (CN)  
 M.A. Correa-Duarte (ES)  
 V. Demir (SG)  
 A. Efros (US)  
 S. Erwin (US)  
 J. Feldmann (DE)  
 A. Fery (DE)  
 W. Fritzsche (DE)  
 N. Ginsberg (US)  
 D. Guldi (DE)  
 C. Klinker (DE)  
 M. Kovalenko (CH)  
 X. Li (US)  
 G. Markovich (IL)  
 D. Milliron (US)  
 M. Niederberger (CH)  
 D. Norris (CH)

M. Scheele (DE)  
 W. Shih (US)  
 M. Treguer-Delapierre (FR)  
 S. Ulloa (US)  
 D. Vanmaekelbergh (NL)  
 Y. Vaynzof (DE)

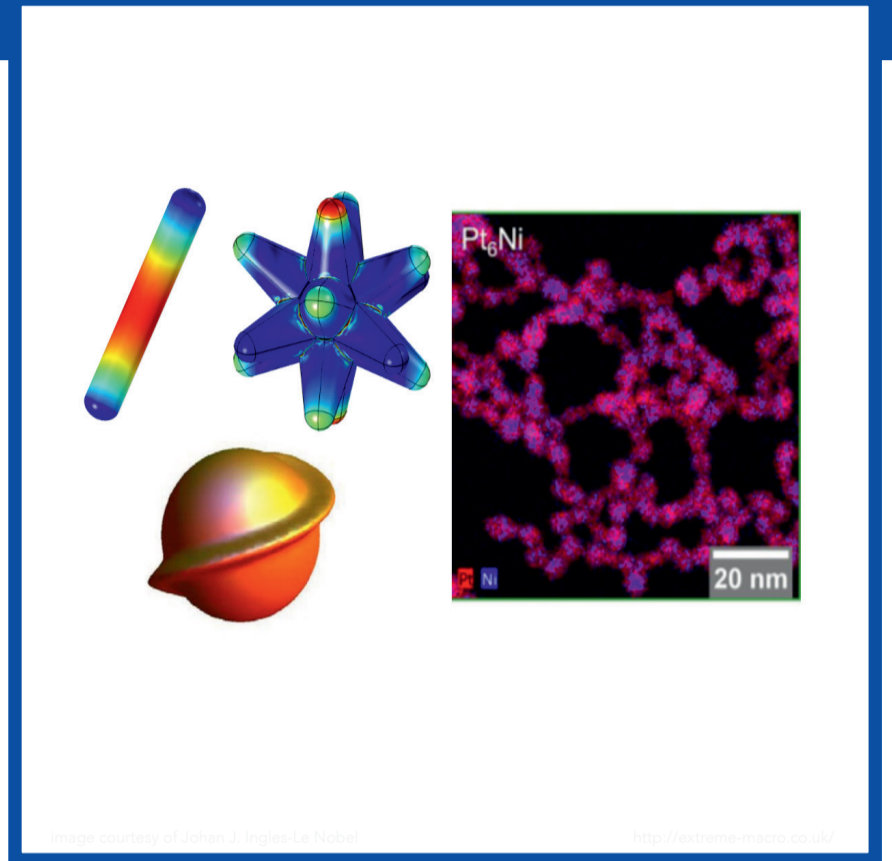
#### Scientific coordinators

Steven Erwin  
 Naval Research Laboratory, USA  
 Alexander Eychmüller  
 Technical University Dresden,  
 Germany

Alexander Govorov  
 Ohio University, USA

#### Organisation

Katrin Lantsch  
 MPIPES Dresden



Applications received before 10th June 2024 are considered preferentially.

**We plan an on-site workshop. Talks and posters will exclusively be presented on-site.**

Applications are welcome and should be made by using the application form on the website of the event. The number of attendees is limited. The **registration fee** for the international workshop is 200 Euro and should be paid by all participants. Costs for **accommodation and meals** will be covered by the Max Planck Institute. Limited funding is available to partially cover **travel expenses**.

**For further information please contact:**

Visitors Program – Katrin Lantsch  
 MPI for the Physics of Complex Systems  
 Nöthnitzer Str. 38, D-01187 Dresden  
 phone: +49-351-871-1931  
 ccas24@pks.mpg.de  
 www.pks.mpg.de/ccas24