

# IWAMOTO LAB.

## [Quantum Nanophotonics and Topological Photonics]



Nanoscience Center for Photonic, Electronics,  
and Materials Engineering

Quantum Nanophotonics

Department of Electrical Engineering and Information Systems, Department of  
Advanced Interdisciplinary Studies, Graduate School of Engineering

<http://www.iwamoto.iis.u-tokyo.ac.jp>

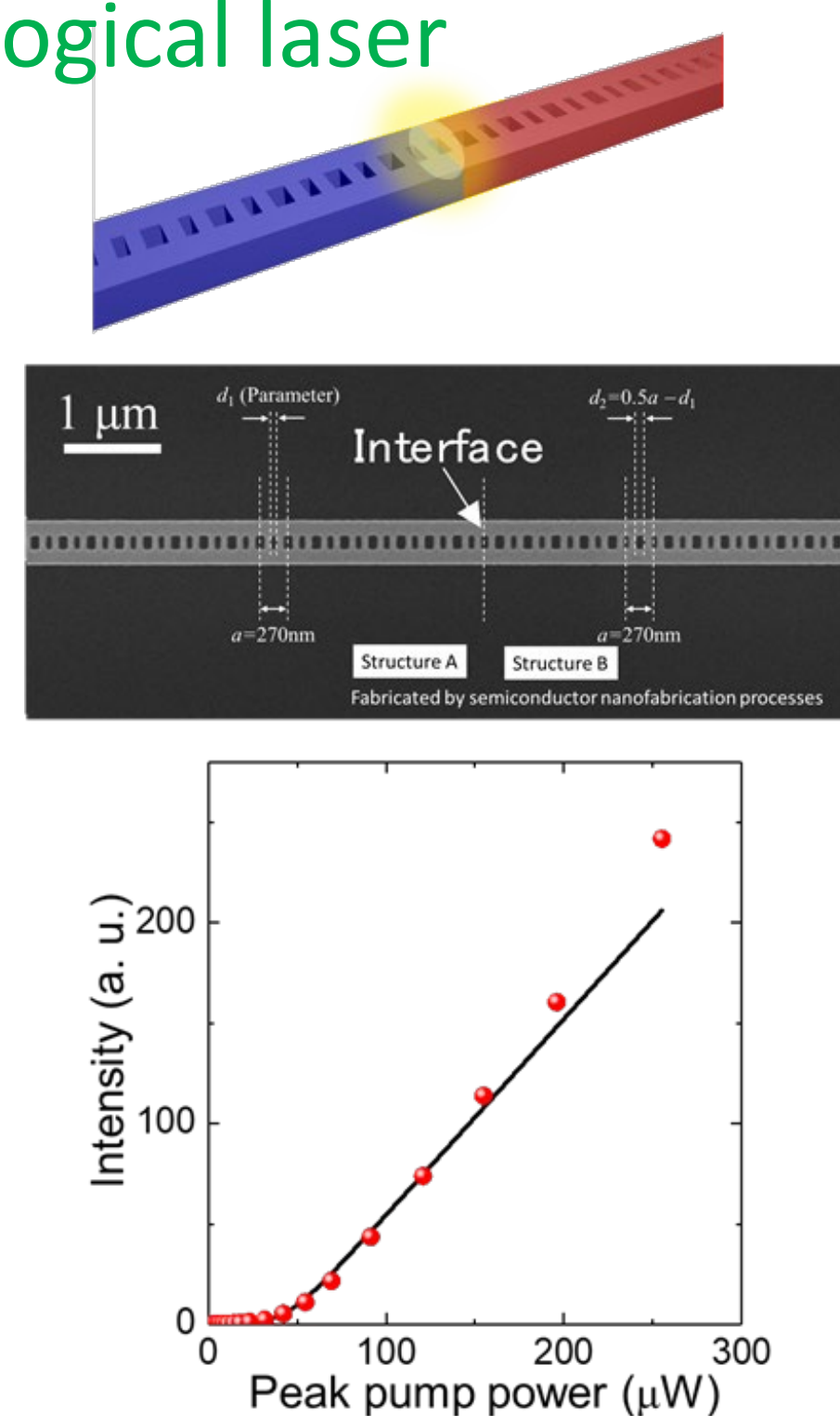
## Control of Photons by Photonic Nanostructures and its Applications

**Overview:** We are investigating photonic nanostructures including photonic crystals for diverse applications. In particular, we are pursuing unprecedented technologies controlling light and novel photonic devices based on the concept of topology, which provides an intriguing approach to control light. Our research interests also include quantum optics and light-matter interactions in photonic nanostructures, and nanophotonics using diamond materials toward quantum information applications.

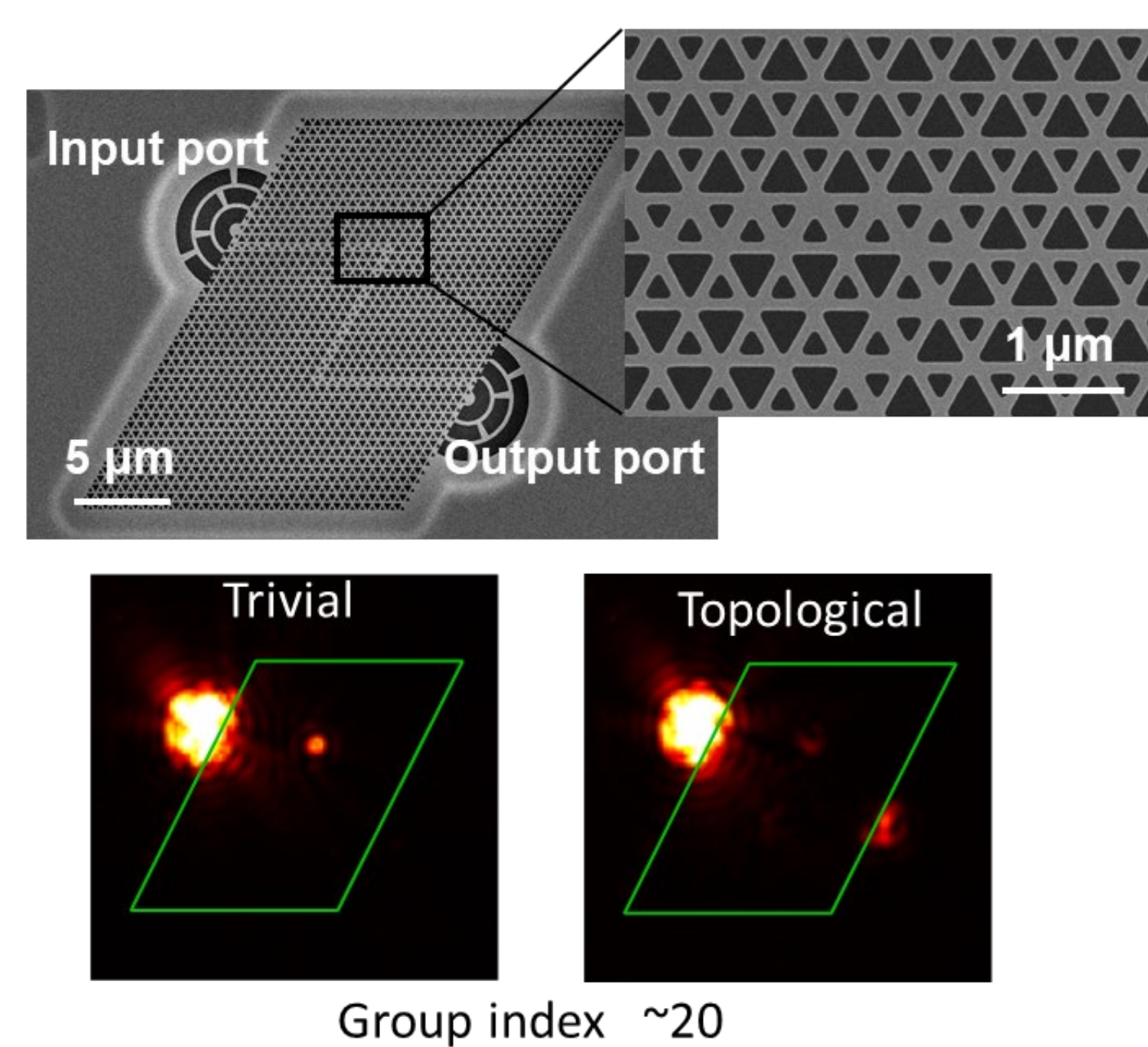
- Main research subjects:**
- Design and fabrication technology of photonic nanostructures
  - Novel optical phenomena in photonic nanostructures
  - Control of light emission properties and quantum nanophotonics
  - Topological photonics / phononics, Non-Hermitian optics
  - Diamond nanophotonics

### Topological Photonics

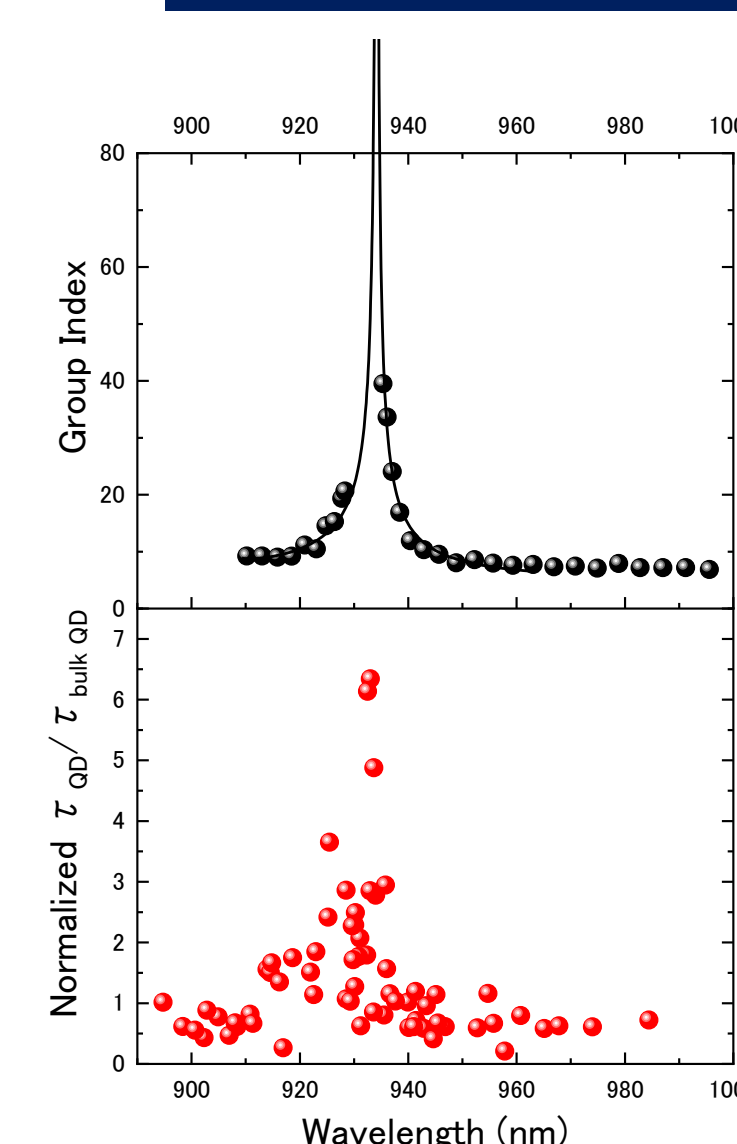
#### Topological laser



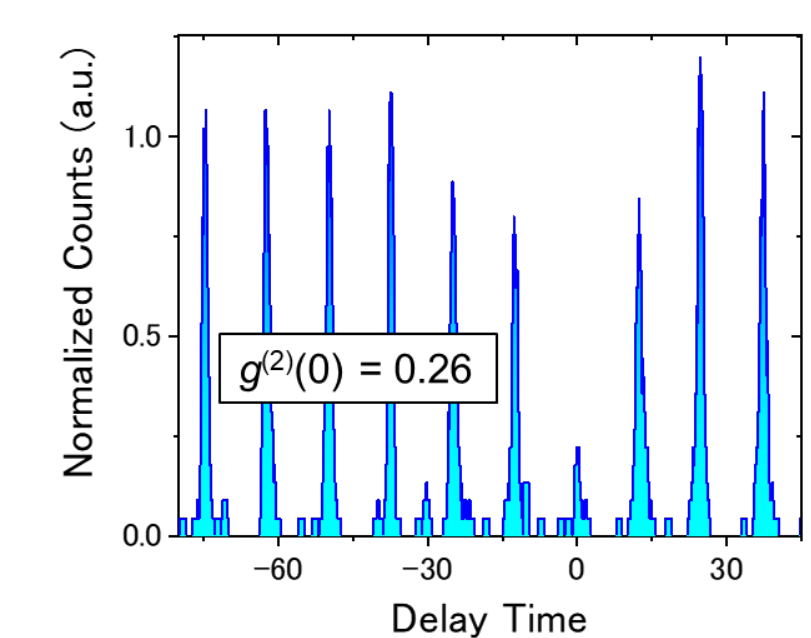
#### Topological slow-light waveguide



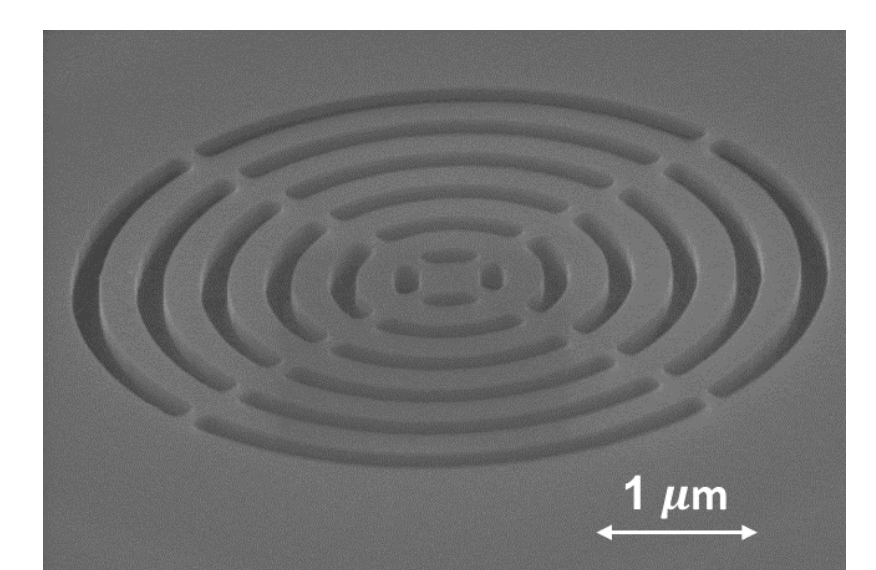
### Quantum Nanophotonics



#### Quantum light sources

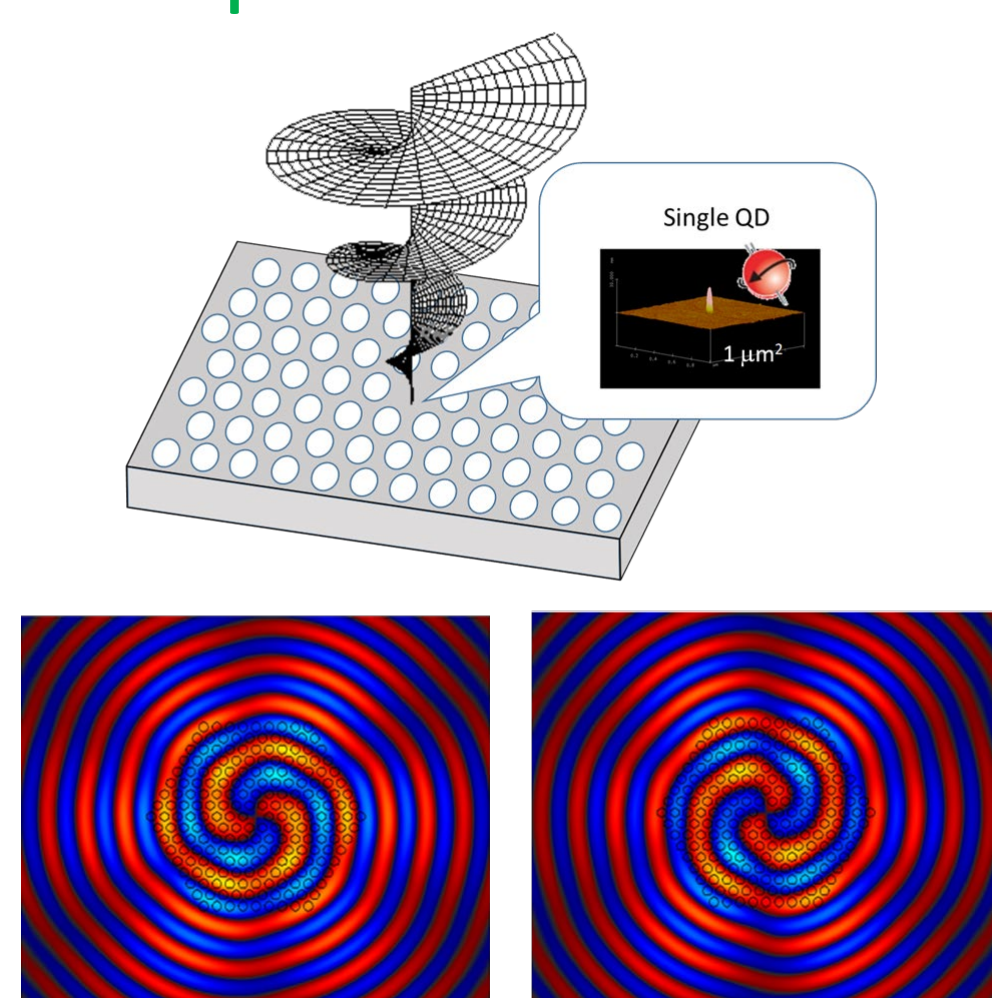


#### Quantum interface

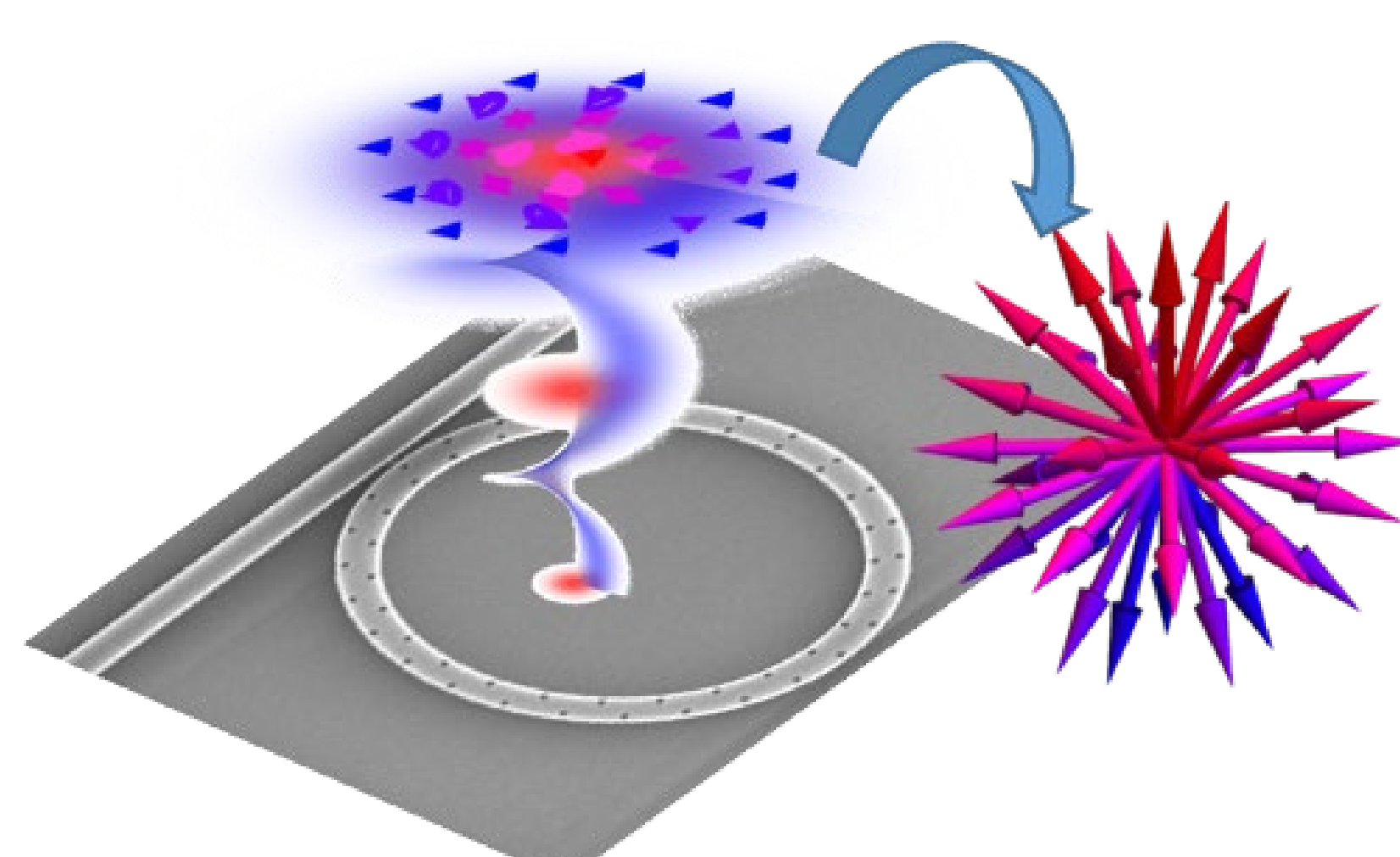


### Structured Light and Singular Optics

#### Spin-OAM interface



#### Optical Skyrmion



### Diamond Nanophotonics

#### Diamond photonic crystal nanocavity

