Simeon Bogdanov

Assistant Professor, Electrical and Computer Engineering

https://ece.illinois.edu/about/directory/faculty/bogdanov
https://simeonbogdanov.com/
bogdanov@illinois.edu
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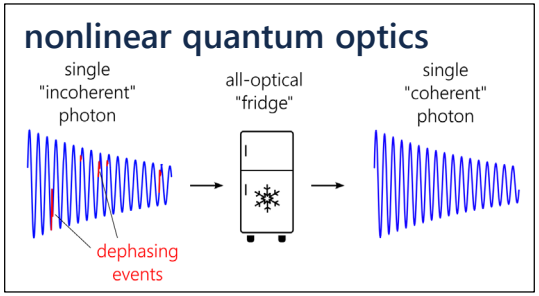
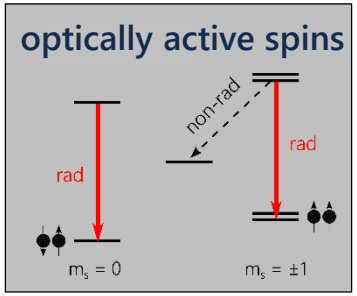
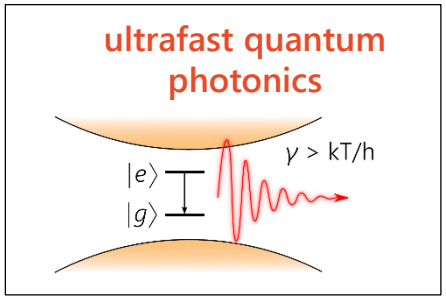
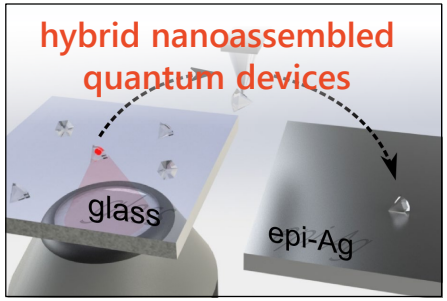
Research Interests

- Quantum and nanoscale photonics
- Nonlinear optics
- Plasmonics and metamaterials
- Integrated optoelectronics
- Optically active solid-state spins
- Nanoscale assembly
- Machine learning and optimal data processing









Current Projects

- Sources of single indistinguishable photons
- Nonlinear optical restoration of quantum coherence
- Quantum applications of alkali excimers
- Optical nanoscale metrology
- Optical readout of single electronic spins

Interest areas for future work

Quantum transduction, biological methods in quantum photonics, atomic imaging of quantum defects, machine learning for quantum optical characterization, “lossless” plasmonics and fundamental limits of light-matter interaction, high-speed single-photon detectors, broadband quantum memories, on-chip integration of quantum optical devices, spin-magnet interaction for sensing and quantum information

Keywords

Ultrafast quantum optics, quantum emitters, plasmonic nanoantennas, time-resolved photon counting, atomic force microscopy, femtosecond lasers, quantum networks, integrated nanophotonics