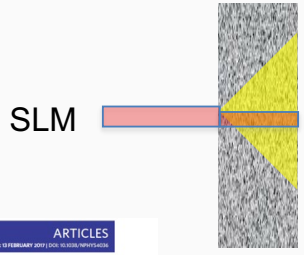
Optics / Nanophotonics Physics research at Yale AP

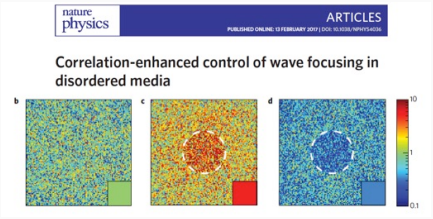
A. Douglas Stone

Complex and non-linear systems

- Laser theory and complex micro/nano lasers
- Quantum/wave chaos, random matrix theory
- Classical/Quantum optics in complex media
- Control of light propagation in random media
- Quantum measurement and control

Focusing and defocusing light through white paint



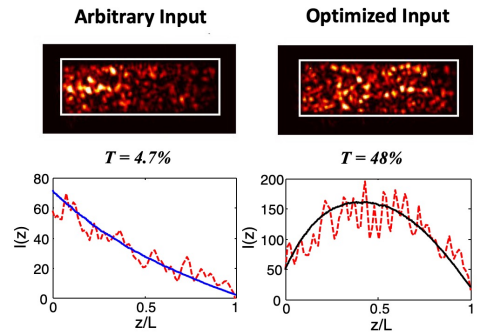


Hui Cao

Complex nanophotonics

Light transport, absorption, amplification, lasing in:

- Disordered or partially disordered nanostructures
- Wave-chaotic microcavities
- Multi-mode fiber with random mode mixing



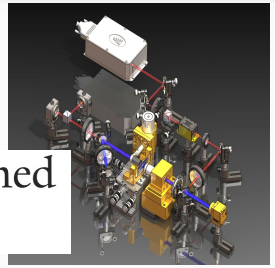
Phys. Rev. Lett. 117, 086803 (2016)

Optics / Nanophotonics Physics research at Yale AP

Simon Mochrie

Optical probes of biological interactions

- Optical tweezers (flow-forces, magnetic)
- STED microscopes
- DNA condensation
- Protein degradation



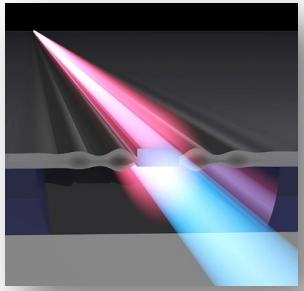
Simon Mochrie Among Scientists Named Allen Distinguished Investigators

Peter Rakich

Mixing Light and Sound for Classical and Quantum Applications

Light transport, absorption, amplification, lasing in:

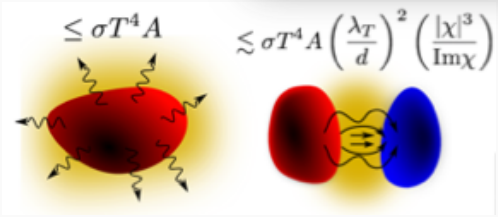
- Silicon Brillouin Photonics
- Bulk Crystalline optomechanics
- Hybrid superconducting qubits



Owen Miller

Theory and design in nanophotonics

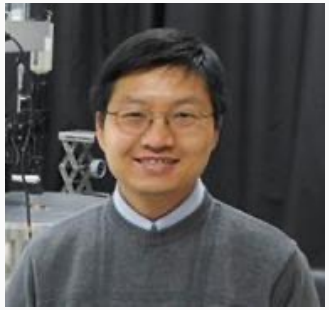
- Fundamental limits: what is possible?
- Large-scale inverse design
- Technology: energy-conversion devices, AR/VR, metalenses, analog computing, etc.



Near-field "blackbody" (PRX 2019)

More Optics / Nanophotonics Physics research at Yale

Jack Harris (Phys)



Hong Tang (EE)

John Schotland (Math)

David Moore (Phys)

Fengnian Xia (EE)

Life *around* New Haven

Many hiking trails…

… nice beaches…

… and good skiing!