



광자 시스템 연구실

Photonic Systems Lab.

Tel : 872-3577

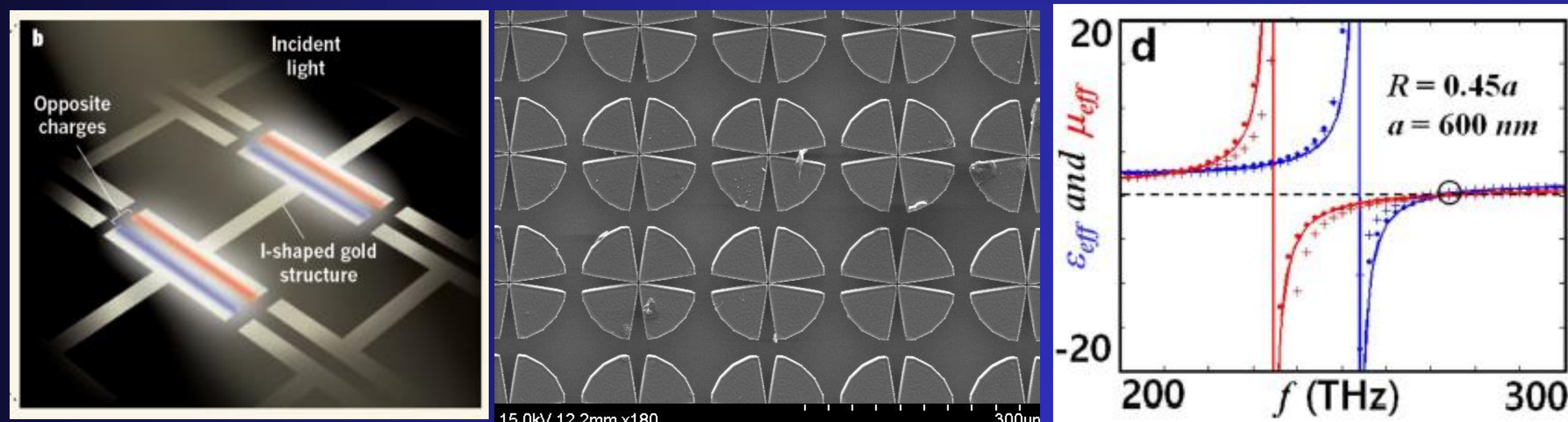
Room : 301-913



Metamaterials



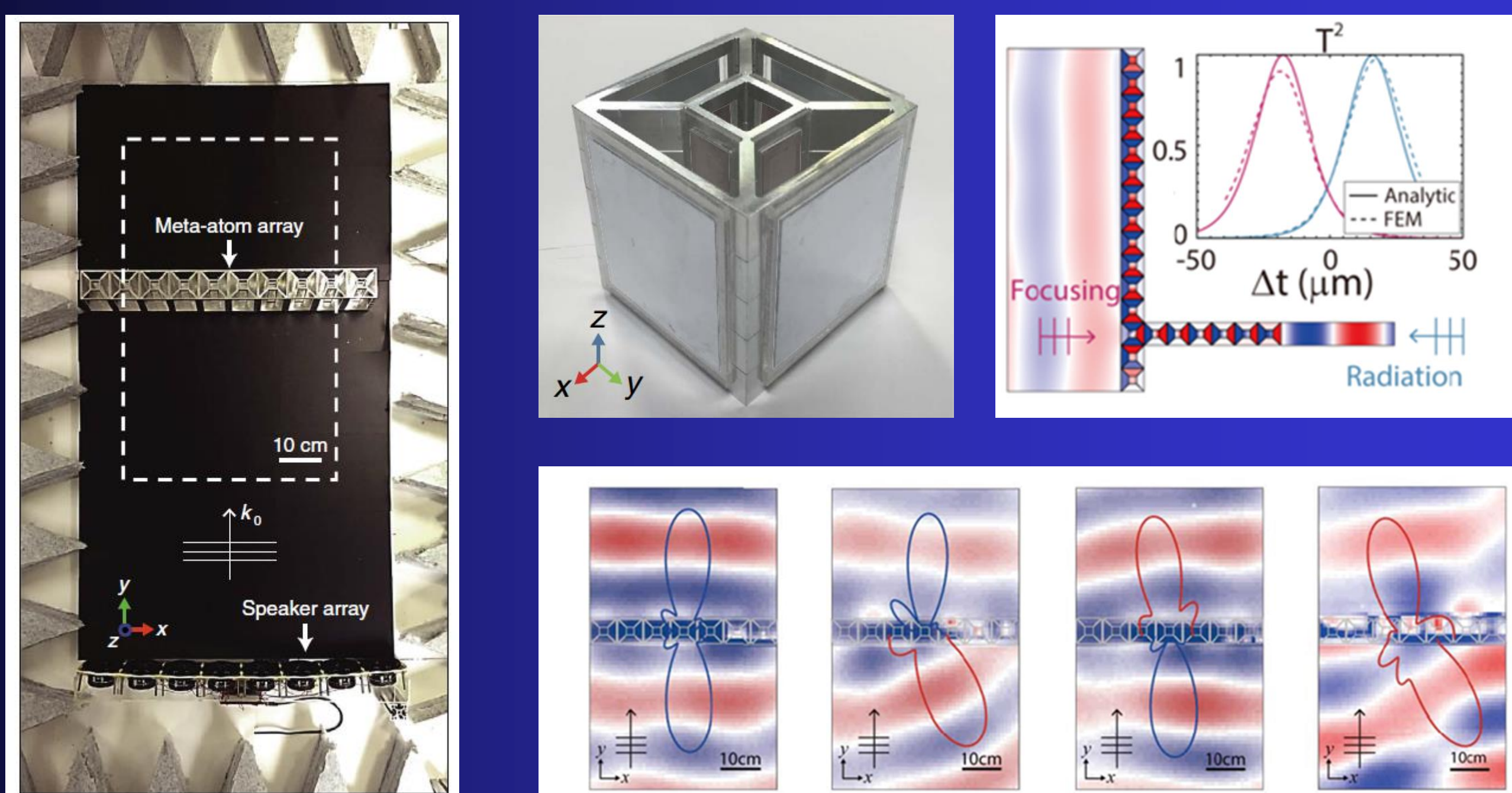
Reconfigurable, Designer Metamaterials



- Ultra-High Index ($n = 40$) Metamaterial
- Top-down Metamaterial in Optics, Microwave, and Acoustics

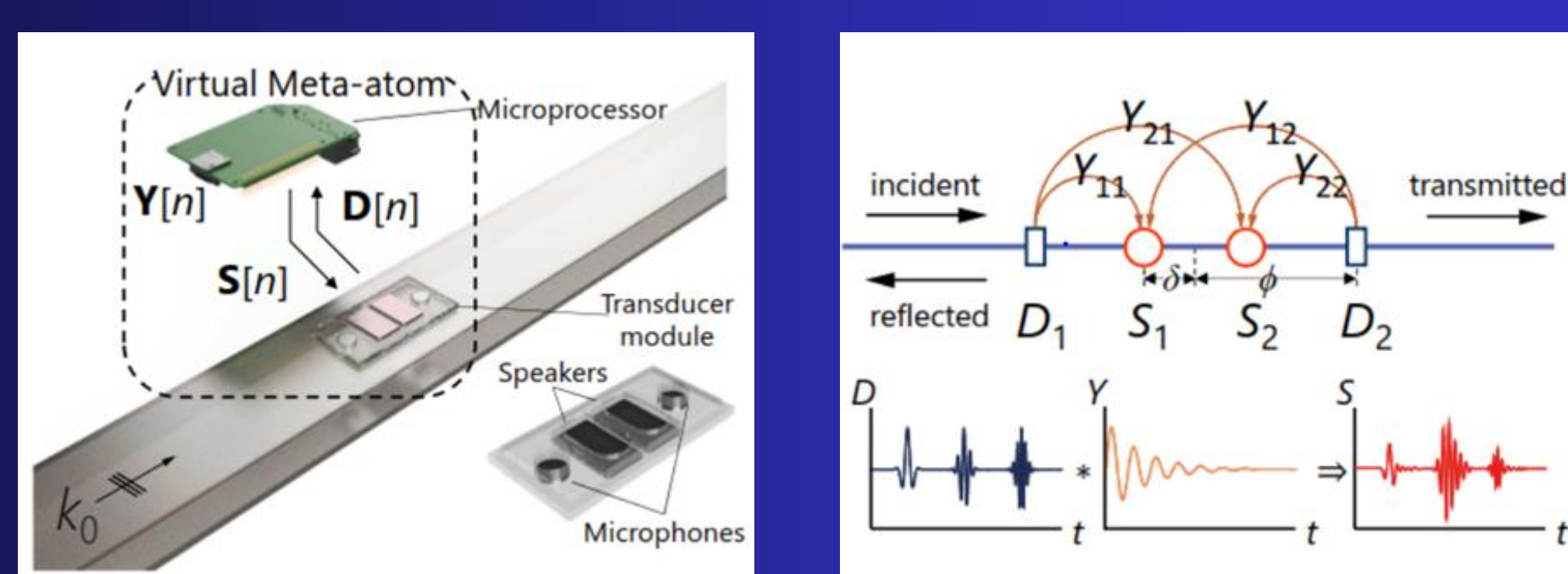
Acoustic Metamaterials

Acoustic Meta-Atom Design



- Decoupled Bi-anisotropic Acoustic Wave Parameter

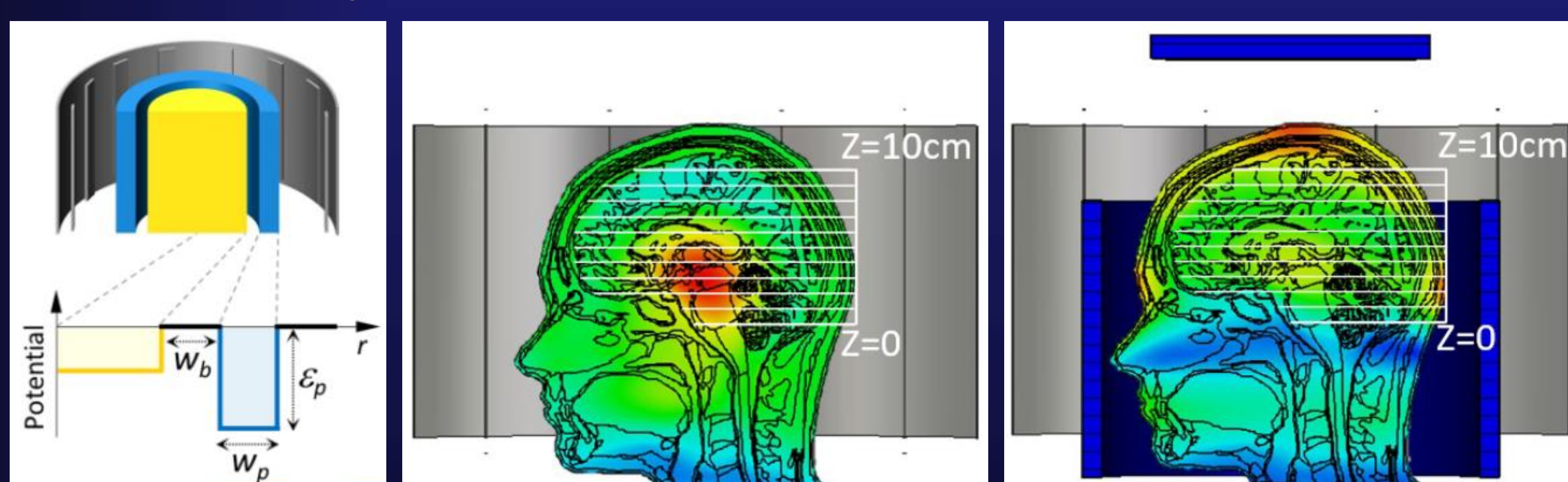
Digitally Virtualized Atoms



- Virtualized Metamaterials without the Resonant Structure
- Decoupled Control of the Effective Bulk Modulus & Density of the Metamaterials

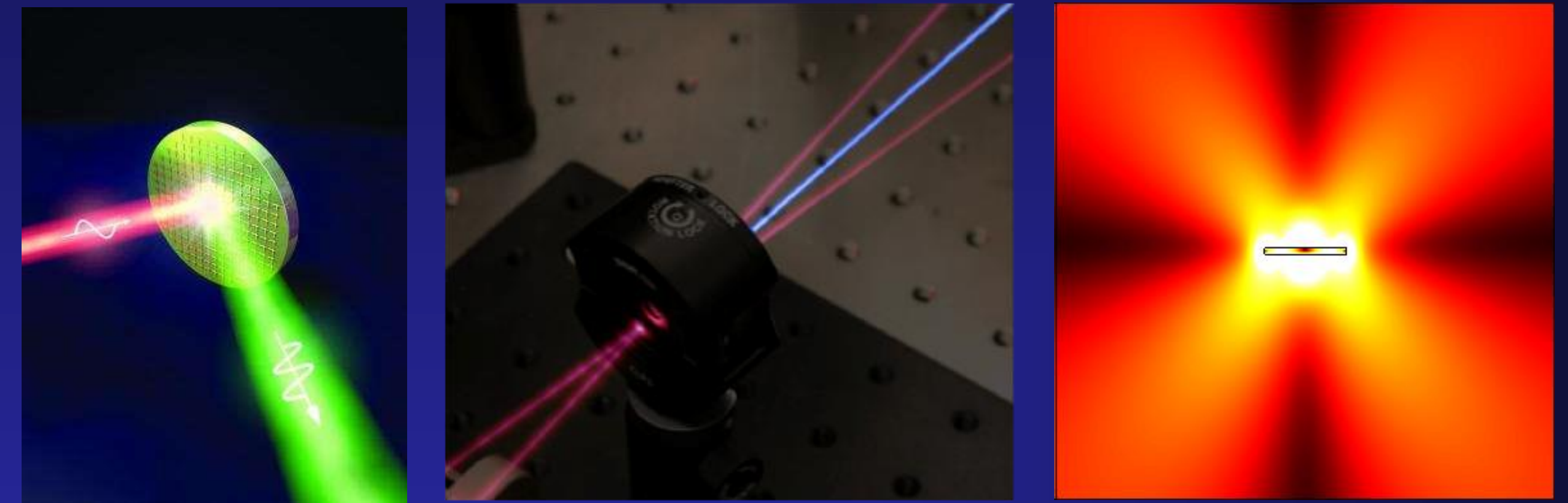
Applications of Metamaterial

MRI Auxiliary Structure

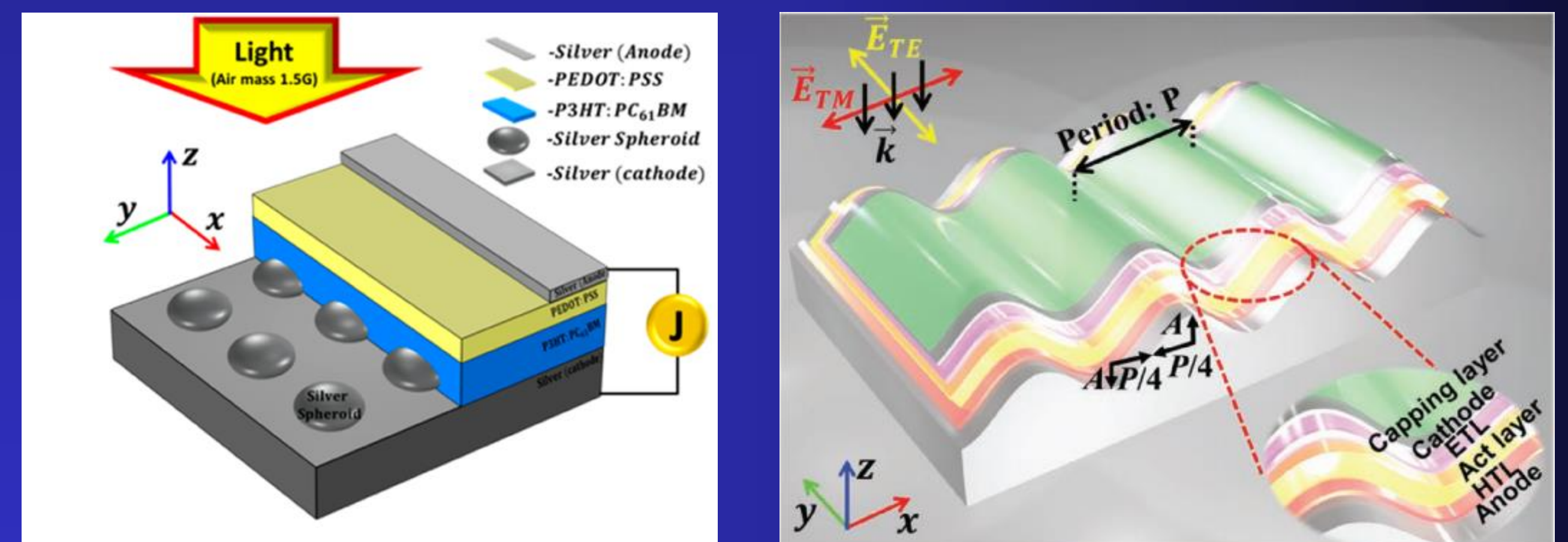


- B_1^+ Homogenization in 7T MRI with Metasurface

Nano Photonics

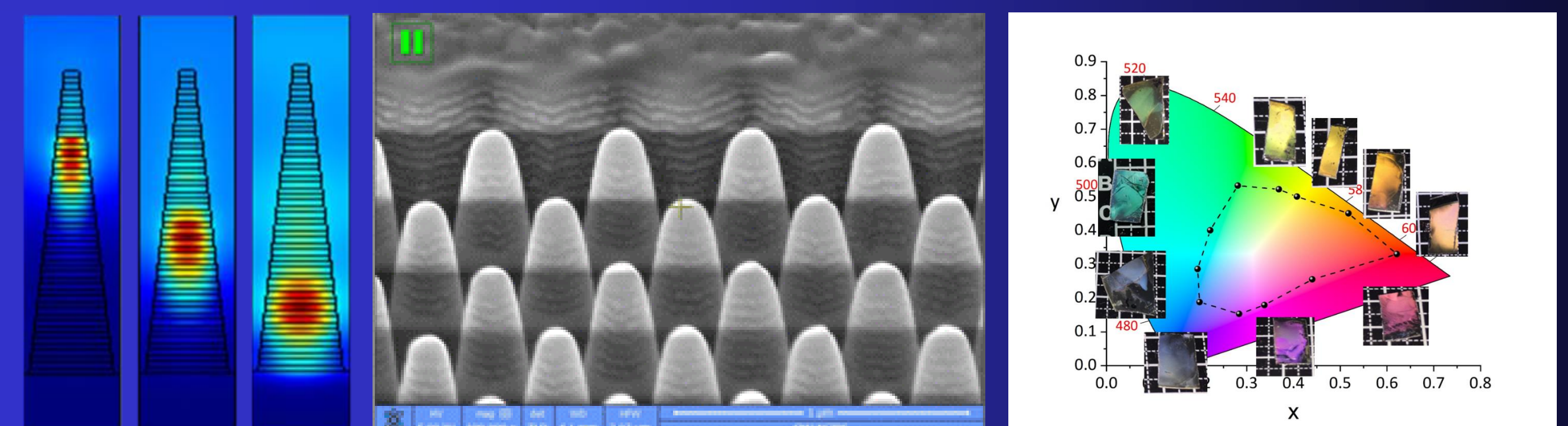


Solar Cells



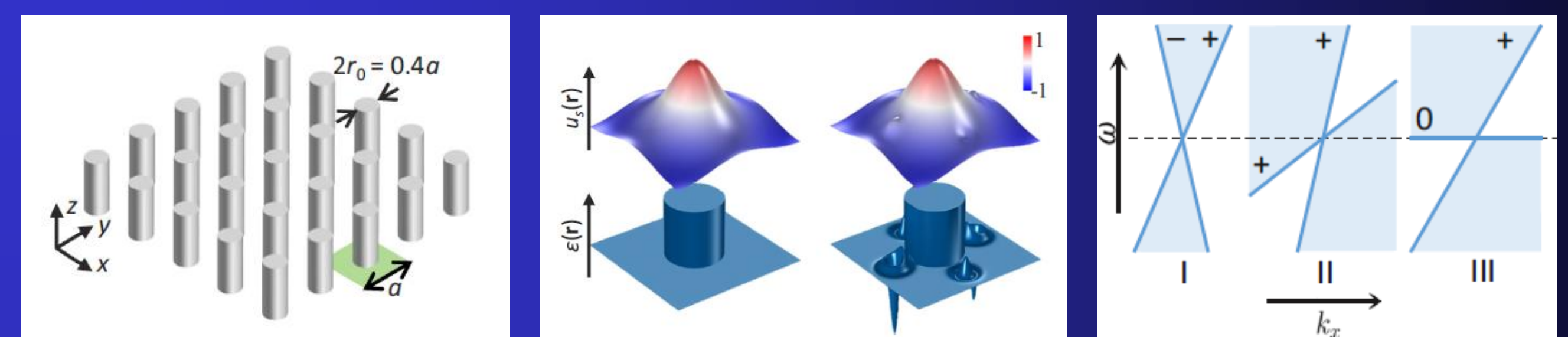
- Plasmonic Light Absorption Enhancement in Solar Cells
- Optical-Electrical Coupled Multiphysics Simulations

Perfect Absorber / Color Filter



- Broad Band Perfect Light Absorber
- Litho-free High Hue Color Filter

Band Engineering



- Universal Design Platform for All Types of Dirac Cones
- Artificial Degeneracy Design with Tunable Anisotropy

Achievements

Research

Top-tier publications

Nature, Science Advances, Nature Photonics, Nature Communications, PRL, ...

Citations 9,074 Total, h-index 49, i10-index 141

Publication Records 387 Total in International Journals and Proceedings

Patents 41 Titles so far, for up to 10 Countries

Graduates Career

Higher Studies Caltech, Stanford, Berkeley, Harvard, Queen's U.

Industries Samsung, LG, KT, KIST, ETRI

Professors (6) KAIST (EE, ME, Bio, MSE, Nano), SNU(EE)

Incubation LuXpert (since 2001)

Collaboration Groups

University of Oldenburg, Germany (on Ultra-fast Plasmonics)

University of Southampton, UK (on Photonic Crystal Fiber Raman Laser)

University of Sydney, Australia (on WDM network Surveillance)

Scuola Superiore Santa Anna, Italy (on Raman Amplifier and Distributed Sensor)

Stanford University, USA (on MEMS devices)

KAIST, Korea (on Nano-Photonics)

HKUST, Hong Kong (on Acoustic Metamaterials)

*Please visit our members directory to meet bright, ever endeavoring young engineers.
Of course, works in this laboratory are usually done at the speed of light!*