Title: Quantum fluids of light in semiconductor lattices

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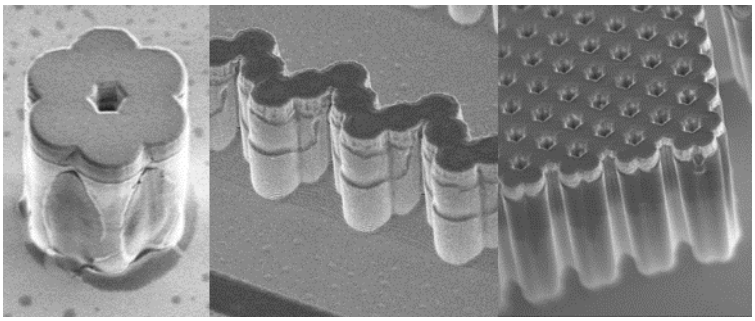
When confining photons in semiconductor lattices, it is possible deeply modifying their physical properties. Photons can behave as finite or even infinite mass particles, photons inherit topological properties and propagate along edge states without back scattering, photons can become superfluid and behave as interacting particles. These are just a few examples of properties that can be imprinted into fluids of light in semiconductor lattices. Such manipulation of light present not only potential for applications in photonics, but great promise for fundamental studies.

During the talk, I will illustrate the variety of physical systems we can emulate with fluids of light by presenting a few recent experiments: a photonic benzene molecule that emits helical photons, a photonic 1D lattice with topological edge states and photonic graphene with exotic Dirac cones. Perspectives in terms of quantum simulation will be discussed.



Caption: Scanning electron microscopy images of photonic lattices made of semiconductor microcavities