Gallium Arsenide Nano-Optomechanical Systems

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I will present our recent research on Gallium Arsenide disk optomechanical resonators confining photons and phonons in a sub-micron interaction volume [1], and reaching an extreme optomechanical coupling of several MHz [2,3]. The understanding of mechanical and optical dissipation in these resonators [4], together with its control to the ultra-low dissipation limit [5], will be exposed. With their strong optomechanical cooperativity, these miniature disks are also compatible with on-chip integration [6] and optoelectronics technologies based on III-V semiconductors. We have taken advantage of these assets to explore the fluidic operation of Gallium Arsenide devices, their close-to-quantum operation, and their interface with Quantum Dots or Quantum Wells for novel polariton-optomechanical scenarios [7].

References:

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