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【405】An ultrastrongly coupled single Terahertz meta-atom

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To approach the regime of single electron spectroscopy, we developed an asymmetric lens setup that makes the THz far-field resolution of single, strongly subwavelength meta-atoms possible.
Measuring the coupling of optical modes in complementary split-ring resonators (cSRRs) to two dimensional electron gases (2DEGs), we report normalized coupling ratios of up to $= 0.6$ in an InSb quantum well. Further, we can experimentally verify the quenching of superradiance in the single resonator system by quantifying the quality factors of the cavity resonances in arrays with decreasing resonator numbers.
The technique paves the way to couple sub-THz radiation to high quality, exfoliated 2D materials.

Authors: JÖCHL, Elsa; Ms RAJABALI, Shima; SCALARI, Giacomo; FAIST, Jérôme; LEHNER, Christian A.; BECK, Mattias; Dr MARKMANN, Sergej; WEGSCHEIDER, Werner

Presenter: JÖCHL, Elsa

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