



Manipulating Light Matter

Interactions at the Nanoscale

Intense resonances occur in nanoscale structures due to excitonic or plasmonic absorption. At heterojunctions of such materials light excitation can lead to charge separation, exploited for photon-to-energy conversion. Control over morphology, structure or surface chemistry is the toolbox to design such interactions, whereas active carrier density regulation allows influencing the near infrared response of heavily doped semiconductors. Exploiting both facilitates active and contactless manipulation of light matter interactions at the nanoscale, envisaged for various applications, such as nanogates, nanobatteries, tunable filters or detectors.

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