Abstract Submitted
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Discovery of Burstein-Moss shift in Re-doped MoS_2 nanoparticles[1] QI SUN, Department of Chemistry, University of Tennessee, LENA YADGAROV, RITA ROSENTSVEIG, Department of Materials and Interfaces, Weizmann Institute of Science, GOTTHARD SEIFERT, Physikalische Chemie, Technische Universitat, RESHEF TENNE, Department of Materials and Interfaces, Weizmann Institute of Science, JANICE MUSFELDT, Department of Chemistry, University of Tennessee — We investigated the optical properties of Re-doped MoS_2 nanoparticles and compared our findings with the pristine and bulk analogs. Our measurements reveal that confinement softens the exciton positions and reduces spin-orbit coupling whereas doping has the opposite effect. We model the doping-induced exciton blue shift in terms of the Burstein-Moss effect. These findings are important for understanding doping and finite length scale effects in model nanoscale materials.

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