

Abstract Submitted  
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**Carrier spin polarization and magneto-polaron formation in colloidal quantum dots**<sup>1</sup> SAVAS DELIKANLI, ANDREAS RUSS, LARS SCHWEIDENBACK, SUNGJIN KIM, JOSEPH MURPHY, ALEXANDER CARTWRIGHT, ATHOS PETROU, HAO ZENG, SUNY at Buffalo — We present a magneto-optical study of magnetic polarons in Mn-doped II-VI colloidal quantum dots. The polarons are formed due to the exchange coupling between the spins of the holes and those of the Mn ions, both of which are localized in the dots. The long lifetime of the excitons allows the observation of the complete formation process of the magneto polaron. The spin alignment occurs at the time scale of hundreds of ps. The extra energy is dissipated through spin lattice interactions, during the next hundreds of nanoseconds. The dependence of these effects on quantum confinement are studied in different systems.

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