Abstract Submitted
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**Carrier Dynamics in Microdisk Photonic Molecules**[1] FELIX M. MENDOZA, ROBERTO C. MYERS, GREG CALUSINE, ARTHUR C. GOSSARD, DAVID D. AWSCHALOM, Center for Spintronics and Quantum Computation, University of California, Santa Barbara, CA 93106, XIA LI, B.J. COOLEY, NITIN SAMARTH, Materials Research Institute, Penn State University, University Park, PA 16802 — Semiconductor microcavities offer unique means of controlling light-matter interactions, which may be important in optical communications and for quantum information processing schemes. The cavities under study here are coupled microdisks that behave like "photonic molecules" (PMs) with bonding and antibonding states for the confined photon modes. We study different PM geometries consisting of laterally coupled GaAs/GaAlAs microdisks of both circular and elliptical shape. Steady-state photoluminescence measurements reveal bonding and antibonding modes with distinct polarization characteristics. Additionally, we present direct time-resolved spectroscopy of the carrier and spin dynamics in these structures. The combination of static and dynamic spectroscopies is used to explore the evolution of spin coherence in photonic molecule structures.

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