

Abstract Submitted
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Laser-controlled local magnetic field using semiconductor quantum rings YURIY PERSHIN, CARLO PIERMAROCCHI, Michigan State University — We analyze theoretically the dynamics of N electrons localized in a semiconductor quantum ring under a train of phase-locked infrared laser pulses. The pulse sequence is designed to control the total angular momentum of the electrons. The quantum ring can be put in metastable states characterized by a persistent current much stronger than the one generated by an Aharonov-Bohm flux. The local magnetic field created by these currents can be used for a selective quantum control of single spins in semiconductor systems.

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