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**Enhancement of spin lifetime in quantum well lasers using interface fluctuation quantum dots** RYAN WOODWORTH, Pennsylvania State University, ARI MIZEL, Science Applications International Corporation, RUSKO RUSKOV, Ames National Laboratory, GERALD MAHAN, Pennsylvania State University — Research on semiconductor heterostructures provides many insights into the next generation of optoelectronic devices. In particular, the gain of a microdisk laser seems to be enhanced by the presence of a long-lived optical cavity mode. Here we analyze a recent experiment using GaAs-AlGaAs microdisks with interface fluctuation quantum dots. A numerical simulation shows enhancement of spin dephasing time in the conduction band due to exchange scattering and D'yakonov-Perel' coupling. Possible applications to quantum computing are discussed.

Ryan Woodworth  
Pennsylvania State University

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