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**Spin relaxation of two-dimensional excitons in a strong magnetic field**[1] O. OLENDSKI, T. V. SHAHBAZYAN, Jackson State University — We study spin relaxation of quantum well excitons in a perpendicular magnetic field. In a strong field, the dominant relaxation mechanism for an optically-excited magnetoexciton is phonon-assisted spin-orbit transition of the constituent electron or hole. We show that in a quantum well the exciton spin relaxation rate is quadratic in magnetic field in contrast to the fifth power dependence in a quantum dot. We calculate relaxation rates for excitons in GaAs quantum wells excited by both left and right-polarized light and find that they are much slower than those in quantum dots due to the dominant contribution of exciton kinetic energy in the final state. We also find that the relaxation rate is very sensitive to the applied in-plane electric field that causes exciton drift in the ground state.

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Oleg Olendski
Jackson State University

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