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Modification of electron spin properties in a GaAs epilayer by an in-plane electric field[1] MICHAEL MACMAHON, VANESSA SIH, Department of Physics, University of Michigan, Ann Arbor, MI 48109 — The interaction of electron spins with accelerating electric fields in bulk gallium arsenide results in many effects that are relevant to proposed spin-based devices. For example, in-plane electric fields have been shown to change the g-factor[2], generate spin polarization[3], and decrease the spin lifetime[4]. Most such studies have used only very low electric fields, typically less than 100 V/cm. We investigate the dependence of spin lifetime on electric field at high electric fields and separate the contribution due to heating.

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Michael Macmahon
Department of Physics, University of Michigan, Ann Arbor, MI 48109

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