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**Phonon mediated spin relaxation in a moving quantum dot**[1]
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— We study decoherence of an electron spin qubit that is being transported in a moving quantum dot. Our focus is on spin relaxation due to phonon noise through the spin-orbit interaction. We find that the effective magnetic field caused by the motion of the electron can either enhance or suppress spin relaxation depending on the angle between the moving direction and the external magnetic field. At low external magnetic field ($B \lesssim 0.5$ T), the suppression effect can be significant, which indicates that a moving quantum dot can maintain spin coherence better than a static dot. We also find that the spin relaxation rate is not a monotonically increasing function of the applied magnetic field when the motion of the electron is taken into account.

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