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Spin Hall effect: from the ballistic to diffusive regime ROKSANA GOLIZADEH-MOJARAD, SUPRIYO DATTA, School of Electrical and Computer Engineering, Purdue Universtiy, West Lafayette, IN-47906, USA — We describe a model based on the Non-Equilibrium Green's function (NEFG) method that allows us to study the spin Hall effect continuously from the ballistic to the diffusive regime. Our numerical results show good agreement with recent experiments by Sih et. al. [PRL 97, 096605 (2006)]. Analytical expressions for the spin accumulation density will also be presented that describe the numerical results very well as different parameters are varied.

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