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**Electric-field-induced modification in Curie temperature of Co monolayer on Pt(111)** KOHJI NAKAMURA, MIKITO OBA, TORU AKIYAMA, TOMONORI ITO, Mie Univ, MICHAEL WEINERT, University of Wisconsin-Milwaukee — Magnetism induced by an external electric field ($E$-field) has received much attention as a potential approach for controlling magnetism at the nano-scale with the promise of ultra-low energy power consumption. Here, the $E$-field-induced modification of the Curie temperature for a prototypical transition-metal thin layer of a Co monolayer on Pt(111) is investigated by first-principles calculations by using the full-potential linearized augmented plane wave method that treats spin-spiral structures in an $E$-field. An applied $E$-field modifies the magnon (spin-spiral formation) energies by a few meV, which leads to a modification of the exchange pair interaction parameters within the classical Heisenberg model. With inclusion of the spin-orbit coupling (SOC), the magnetocrystalline anisotropy and the Dzyaloshinskii-Morita interaction are obtained by the second variation SOC method. An $E$-field-induced modification of the Curie temperature is demonstrated by Monte Carlo simulations, in which a change in the exchange interaction is found to play a key role.

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