# Controlling magnetic anisotropy in graphene spinterfaces

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Graphene-ferromagnet heterostructures have acquired significant attention for their use in two-dimensional spintronic circuits as spinterfaces. Because of its tunable electrical properties, long-spin diffusion length, and scalability [1–3], graphene stands out as an ideal material for engineering new spinterfaces [4]. In this study, we investigate the controllability of graphene spinterfaces by characterizing the magnetic properties of the cobalt thin films grown over graphene through magneto-optic Kerr effect (MOKE) measurements. We observe drastic changes in magnetic anisotropy and coercivity of the thin film heterostructures under different interface conditions achieved by intermediate ultrathin metal-oxide layers. We conduct a comprehensive microstructural analysis of the heterostructures to gain insights into the underlying mechanisms that lead to the modifications induced by interface conditions. Furthermore, we also explore the electrical control of magnetic anisotropy in such graphene-ferromagnet heterostructures. This investigation opens unique pathways for new tunable spintronic interfaces.

References

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