

# Transfer and integration of exfoliated Co<sub>2</sub>FeSi Heusler ferromagnetic electrodes for graphene-based lateral devices

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Contacting graphene with ferromagnets can be destructive to the interface and often leads to deterioration of device parameters. The solution is to deposit a ferromagnetic layer on HOPG, which allows for exfoliation and release of the layer from the substrate and transfer using a micromanipulator in an inert atmosphere. Structural studies (XRD and TEM) indicate a (001) texture and two variants of in-plane orientation of the Co<sub>2</sub>FeSi films. The magnetic properties of the films indicate a very low coercive field and magnetization approaching that of bulk alloys. A lateral heterostructure device of Co<sub>2</sub>FeSi/graphene/Co<sub>2</sub>FeSi on Si/SiO<sub>2</sub> was assembled via a micromanipulator transfer method. The transport properties of the device showed a contact resistance of 2.4 kΩ and a small magnetoresistance. The presented method can limit the degradation of graphene compared to direct deposition of ferromagnet and is a perspective for the integration of 2D spintronic devices and low-resistance contacts.

*The Financial support from the National Science Center of Poland (NCN) in the Grant SONATA (Grant No. UMO-2021/43/D/ST5/01116) is acknowledged.*