Ferromagnetic ultrathin Co film/silicene heterostructure

Ryszard Zdyb,[1] Mariusz Golębiowski,[1] Piotr Dróżdż,[1] Tomasz Jaroch,[1] Agnieszka Stępniak-Dybala,[1] O. Tomanec,[2] and Mariusz Krawiec[1]

[1] *Institute of Physics, Maria Curie-Sklodowska University, Lublin, Poland*
[2] *Palacky University, Olomouc, Czech Republic*

Integration of two dimensional (2D) materials with ferromagnets offers a simple way for the injection and transport of spin polarized current in 2D layers. Preparation such heterostructure with silicene is particularly challenging due to the possible formation of silicides. In this presentation we show results of LEED, STM, spin polarized low energy electron microscopy (SPLEEM), cross sectional high resolution transmission electron microscopy (HR TEM) measurements and DFT calculations which indicate that the planar form of silicene supports epitaxial growth of ultrathin ferromagnetic Co films. The obtained heterostructure is stable at room temperature without destruction of the silicene layer.

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