

Einladung

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Freitag, 15. Juni 2018, 13:15 Uhr

Raum PHY 5.0.21

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## **“Conventional or unconventional - what drives superconductivity in atomically thin FeSe?”**

The pairing mechanism in iron-based superconductors is believed to be unconventional, i.e. not phonon-mediated. The achieved transition temperatures  $T_c$  in these superconductors are still significantly below those of some of the cuprates, with the exception of single layer FeSe films on SrTiO<sub>3</sub> showing a  $T_c$  between 60 and 100 K, i.e. an order of magnitude larger than in bulk FeSe. This enormous increase of  $T_c$  demonstrates the potential of interface engineering for superconductivity, yet the underlying mechanism of Cooper pairing is not understood. Both conventional and unconventional mechanisms have been discussed.

Here we report a direct measurement of the electron-boson coupling function in FeSe on SrTiO<sub>3</sub> using inelastic electron scattering which shows that the excitation spectrum becomes fully gapped below  $T_c$  strongly supporting a predominantly electronic pairing mechanism.

We also find evidence for strong electron-phonon coupling of low energy electrons, which is however limited to regions near structural domain boundaries.