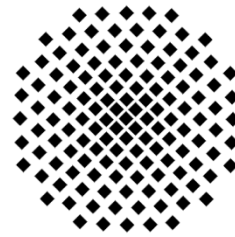


# Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart  
Max-Planck-Institut für Festkörperforschung  
Max-Planck-Institut für Intelligente Systeme

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Dienstag, 11. Januar 2022

16:15 Uhr

V57.01

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Prof. Dr. Jörg Wrachtrup, Universität Stuttgart, Telefon: 0711 - 685-65278

## Strongly correlated electrons and excitons in moire superlattices

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### Abstract

Twisted bilayers of transition metal dichalcogenides offer a wealth of new phenomena, ranging from dipolar excitons to correlated insulator states. An example of qualitatively new phenomena in this system is our recent observation of an electrically tunable two-dimensional Feshbach resonance in exciton-hole scattering [1], which allows us to control the strength of interactions between excitons and holes located in different layers. Our findings enable hitherto unexplored possibilities for optical investigation of many-body physics, as well as realization of degenerate Bose-Fermi mixtures with tunable interactions.

[1] I. Schwartz, Y. Shimazaki, C. Kuhlenkamp, K. Watanabe, T. Taniguchi, M. Kroner, A. Imamoglu, arXiv:2105.03997 (2021).