## Mathematics and CS Seminar

# Spectrum of non-selfadjoint operators with small random noise

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Host: M. Beiglboeck, N. Berestycki, L. Erdoes, J. Maas

The spectrum of linear non-selfadjoint operators can be very unstable that is sensitive to even small perturbations. This phenomenon is referred to as "pseudospectral effect". Traditionally this pseudospectral effect was considered a drawback since it can be the source of immense numerical errors, as shown for instance in the works of L. N. Trefethen. This pseudospectral effect can, however, also be the source of many new insights. A line of works by Hager, Bordeaux-Montrieux, Sjöstrand, Christiansen and Zworski exploits the pseudospectral effect to show that the (discrete) spectrum of a large class of non-selfadjoint pseudo-differential operators subject to a small random perturbation follows a Weyl law with probability close to one. In this talk we will discuss the local statistics of the eigenvalues of such operators (in dimension one). That is the distribution of the eigenvalues on the scale of their average spacing. We will show that the pseudospectral effect leads to a partial form of universality of the local statistics of the eigenvalues. This is joint work with Stéphane Nonnenmacher (Université Paris-Sud).

### Tuesday, November 12, 2019 05:30pm - 06:30pm

SR 14, 2 OG., OMP 1, University of Vienna

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