Title of the talk: Explanation of the Meyer Neldel rule

P. Stallinga, H.L. Gomes, Universidade do Algarve

The Meyer Neldel rule applied to electronic materials is an observation that the activation energy of current (or mobility) depends on the bias conditions but that curves in Arrhenius plots pass through a single point, defining the isokinetic temperature and mobility.
This kind of behavior is rather ever-present in organic electronic materials and other low-mobility materials such as amorphous silicon, but lacks an adequate explanation. In the current contribution we show that the origin for this behavior lies in the existence of a huge density of trap states. We show simulations and experiments proving this.