

# **ATOMISTIC-TO-CONTINUUM CONVERGENCE FOR QUASI-STATIC CRACK GROWTH IN BRITTLE MATERIALS**

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In this talk, I present an atomistic-to-continuum limit for a model of a quasi-static crack evolution driven by time-dependent boundary conditions. We consider a two-dimensional atomic mass spring system whose interactions are modeled by classical interaction potentials, supplemented by a suitable irreversibility condition accounting for the breaking of atomic bonding. In a simultaneous limit of vanishing interatomic distance and discretized time step, we identify a continuum model of quasi-static crack growth in brittle fracture featuring an irreversibility condition, a global stability, and an energy balance. Based on joint work with Joscha Seutter.