Crack growth by vanishing viscosity in planar elasticity

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In this talk we show existence of quasistatic evolutions in a fracture model for brittle materials by a vanishing viscosity approach, in the setting of planar linearized elasticity. Here the crack is not prescribed a priori and is selected in a class of (unions of) regular curves. To prove the result, it is crucial to analyze the properties of the energy release rate showing that it is independent of the crack extension. This is joint work with S. Almi (Wien) and G. Lazzaroni (Florence).