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Non-equilibrium transitions and critical points in a two-temperature Ising model[1] NICK BORCHERS, Virgina Tech, R.K.P. ZIA, Virgina Tech and Iowa State University, MICHEL PLEIMLING, Virgina Tech — From complex biological systems to a simple simmering pot, thermodynamic systems held out of equilibrium are exceedingly common in nature. Despite this, a general theory to describe these types of phenomena remains elusive. In this talk, we further explore a simple two-temperature modification of the venerable Ising model in hopes of shedding some light on these issues. Of particular interest is the "freezing by heating" transition, and a range of larger system sizes are considered in the hopes of determining the transitions critical temperature and exponents. While this transition initially appeared as second-order, evidence suggesting a possible weak first-order nature obscured by finite size effects will also be explored.

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