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Low-temperature spectroscopy for number fields

We establish, in the context of general C^* -dynamical systems, a precise way to associate partition functions to extremal KMS states that are of type I. The study is motivated by low-temperature phase transitions exhibited by certain C^* -dynamical systems that arise from number fields, which do not have intrinsic Hamiltonians because their observed absorption spectra varies depending on the equilibrium configuration. However, the resulting collection of partition functions can be used as an invariant for number fields and congruence monoids. This is joint work with Chris Bruce and Takuya Takeishi.