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## Nice inducing schemes and the thermodynamics of rational maps

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(joint work with Feliks Przytycki)

We consider the thermodynamic formalism of a complex rational map  $f$  of degree at least 2, viewed as a dynamical system acting on the Riemann sphere. More precisely, for a real parameter  $t$  we study the (non-)existence of equilibrium states of  $f$  for the potential  $-t \ln |f'|$ , and the analytic dependence on  $t$  of the corresponding pressure function. We give a fairly complete description of the thermodynamic formalism of a rational map that is "expanding away of critical points" and that has arbitrarily small "nice couples". In particular our results apply to infinitely renormalizable quadratic polynomials with a priori bounds, non-renormalizable polynomials, topological Collet-Eckmann rational maps, and backward contracting rational maps.