Toeplitz algebras of Baumslag—Solitar semigroups

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Let $c$ and $d$ be positive integers. The associated Baumslag—Solitar group is the group

$$\langle a, b : ab^c = b^d a \rangle.$$ 

Jack Spielberg has recently shown that the Baumslag—Solitar groups are quasi-lattice ordered in the sense of Nica. Thus they have tractable Toeplitz algebras, and each of these algebras carries a natural action of the real line. I will talk about the equilibrium states of these algebras. For inverse temperatures larger than a critical value, there is a large simplex of KMS states parametrised by probability measures on the unit circle. At the critical value, and under a mild hypothesis, there is a phase transition in which this simplex collapses to a singleton.

This is joint work with Lisa Orloff Clark and Iain Raeburn.