

Discrete breathers in thermal equilibrium:distributions and energy gaps

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We study a discrete two-dimensional nonlinear system that allows for discrete breather solutions. We perform a spectral analysis of the lattice dynamics at thermal equilibrium and use a cooling technique to measure the amount of breathers at thermal equilibrium. Our results confirm the existence of an energy threshold for discrete breathers. The cooling method provides a novel way of measuring and analyzing discrete breather distribution properties in thermal equilibrium.

[1] M. Eleftheriou, S. Flach, Physica D 202, (2005), 142-154