

DISORDERED FERMIONS ON LATTICES AND THEIR SPECTRAL PROPERTIES

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ABSTRACT. We discuss some relevant spectral properties of C^* -dynamical systems based on algebras equipped with a \mathbb{Z}^2 -grading (\mathbb{Z}^2 -asymptotically Abelian C^* -dynamical systems). Such an analysis applies to disordered models living on \mathbb{Z}^d -lattices describing Fermions, and has as a particular case disordered spin models including the spin glasses. By using the investigation of the Arveson Spectrum (known by Physicists as *the set of the Bohr Frequencies*), and then the Connes and Borchers Γ -spectra and the relative associated invariants, we are able to classify the type of the von Neumann algebras generated by any temperature state (i.e. KMS states).

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