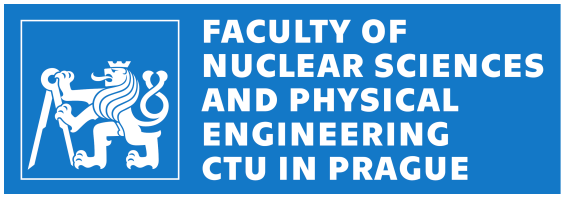

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Generalized bulk-edge correspondance at positive temperature

Monday, 23 May 2022 11:00 (1 hour)

By extending the gauge covariant magnetic perturbation theory to operators defined on half planes, we prove that for general 2d random ergodic magnetic Schrödinger operators the celebrated bulk-edge correspondence is just a particular case of a much more general paradigm, which also includes the theory of diamagnetic currents and of Landau diamagnetism. Our main result is encapsulated in a formula, which states that the derivative of a large class of bulk partition functions with respect to the external constant magnetic field, equals the expectation of a corresponding edge distribution function of the velocity component which is parallel to the edge. Neither spectral gaps, nor mobility gaps, nor topological arguments are required. The equality between the bulk and edge indices, as stated by the conventional bulk-boundary correspondence, is obtained as a corollary of our purely analytical arguments by imposing a gap condition and by taking a "zero temperature" limit.

This is joint work with S. Teufel and M. Moscolari.

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