

Northeastern University



Mathematics Department

Geometry, Physics, and Representation Theory Seminar

**David Treumann**

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Thursday, March 22, 2:50-3:50 pm, Lake Hall 509

**Betti spectral curves and Betti spectral 3-manifolds.**

**Abstract**

A Lagrangian  $L$  in the cotangent bundle of  $M$  can determine a family of local systems on  $M$ , by either Floer theory or microlocal sheaf theory. When  $M$  is two-dimensional, there is a close analogy between that construction, and the family of Higgs bundles parametrized by a spectral curve in the cotangent of a Riemann surface. When  $M$  is 3-dimensional you could do something similar, and the analogy is more compelling if you allow for the local system on  $M$  to have "irregular singularities" along a boundary – but you have to make up a definition of irregular singularities, in 3d. I'll try to explain starting from Deligne's old irregular Riemann-Hilbert correspondence. The talk is partly based on joint work with Linhui Shen and Eric Zaslow, and partly based on joint work with Xin Jin.