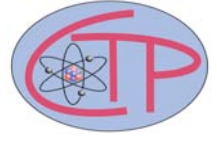




*NEW YORK CITY COLLEGE OF TECHNOLOGY*  
**Physics Department**  
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# **Anderson localization and ray modes**

*Presented by:*

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**Namm, Room 823**

## **Abstract**

Quantum transport is studied for two-dimensional Dirac particles, three-dimensional Weyl particles and a tight-binding system with a degenerate bandstructure in the presence of strong random scattering. In contrast to more conventional systems, there is no complete Anderson localization. Particles can form ray modes in which they propagate along fixed lines in the random medium. Away from these rays the modes decay very rapidly according to a Gaussian law. This behavior is described by a diffusion law whose center is propagating along the rays. We discuss general conditions for the creation of these ray modes and some applications for electronic and photonic systems.

*Light refreshments will be served.*