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Localization and Mesoscopics in Structures and Rooms II

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A new theory is developed which makes quantitative predictions for energy transport that are consistent with localization. The theory promises ultimately to apply to a wide variety of systems. It is based on an assumption of S-matrices that are incoherent - as conventional diffuse field theories would have it - but then corrected to assure exact energy conservation. It is shown that the resulting system responses (they are concatenations of S matrices) have coherence, are consistent with localization, and predict Greens function retrieval. Localization emerges naturally from competition between rates of transport and rate of eigen-mode resolution.
Examples are presented corresponding to coupled rooms and to diffusion in a multiply scattering medium. Future generalizations are discussed and the mathematical challenges are outlined.
This is the second talk in a pair begun in a different session.
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