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Title: Photonics transport theory: Nonlinear response and random lasing in disordered complex media

Abstract: The co-existence of two spectrally well separated and though fundamentally different, spatially overlapping types of random lasing modes is a phenomenon which has never been derived to full extent in theory. Here a framework of diagrammatic transport theory including self-consistent nonlinear enhancement and dissipation in the multiple scattering regime for disordered complex media is proposed which yields qualitatively and quantitatively both types and diameters of random laser modes and their degree of coherence. The blue shift of confined modes can be explained as non-equilibrium Stark-shift of the electronic bandstructure.