Isoscattering Microwave Networks

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Abstract: We discuss the scattering from a pair of isospectral microwave networks consisting of vertices connected by microwave coaxial cables. The networks are extended to scattering systems by connecting leads to infinity in a way preserving their symmetry to form isoscattering networks. We show that the amplitudes and phases of the determinants of the scattering matrices of such networks are the same within experimental uncertainties. Furthermore, we demonstrate that the scattering matrices of the networks are conjugated by the transplantation relation. The results are in perfect agreement with theoretical considerations.

Keywords: Isospectral and isoscattering systems, microwave networks and quantum graphs

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