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Propagation of singularities in three-body scattering. (English) Zbl 0941.35001
Astérisque. 262. Paris: Société Mathématique de France. iv, 151 p. (2000).

In this memoir the author considers a compact manifold with boundary X equipped with a scattering metric g and with a collection c_i of disjoint closed embedded submanifolds of ∂X . Let Δ be the Laplacian of g , suppose that $V \in C^\infty([X_i \cup_i C_i])$ where $[X_i \cup_i C_i]$ is X blown up along C_i , assume that V vanishes at the lift of ∂X , and consider the operator $H = \Delta + V$. The author analyzes the propagation of singularities of generalized eigenfunctions of H , showing that this is essentially a hyperbolic problem which has much in common with the Dirichlet and transmission problems for the wave operator. The author shows also that the wave front relation of the free-to-free part of the scattering matrix is given by the broken geodesic flow at distance π .

Reviewer: [N.Jacob \(Erlangen\)](#)

MSC:

- [35-02](#) Research exposition (monographs, survey articles) pertaining to partial differential equations
- [35P25](#) Scattering theory for PDEs
- [81U10](#) n -body potential quantum scattering theory

Cited in **1** Review
Cited in **16** Documents

Keywords:

[propagation of singularities](#); [3-body scattering](#); [wave front](#); [relation](#); [broken geodesics](#)