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Variational principle for a complex eikonal. Comment on the paper of V. F. Lazutkin "Complex billiard". (Russian) [Zbl 0606.35019](#)

Probl. Mat. Fiz. 11, 269-272 (1986).

[See the preceding review.]

A variational formulation of the problem of finding the solutions of the complex eikonal equations in the plane is given. The real part of the eikonal provides a minimum for the obtained nonnegative functional. It is shown that in the region unbounded by four smooth curves, two of which are convex inward mirrors and another two are concave caustics, the functional is bounded from below by a positive number.

Reviewer: O.Dumbrajs

MSC:

[35J05](#) Laplace operator, Helmholtz equation (reduced wave equation), Poisson equation

[35P05](#) General topics in linear spectral theory for PDEs

Keywords:

variational formulation; complex eikonal equations