

Quantum billiards with nonlinear boundaries.

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The simplest billiard with nonlinear boundaries considered. Two - dimensional in-plane ellipse having eccentricity close to 2 with nonlinear gain and nonlinear absorbing mirrors, deposited on the opposite walls located along minor ellipse axis/1/ forms quasiconfocal optical cavity/2/. The special choice of the gain and loss distribution on the walls selects the waves controlled by Riemann, Burgers, Korteweg-deVries and other nonlinear partial differential equations/1/. Due to joint action of nonlinear boundaries and special coating (like sol gel/3/ or etc.) the effects of whispering gallery modes/3/ and quasiclassical resonances/4/ could be suppressed.

References.

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