报告题目：Perturbations and essential numerical ranges of Hamiltonian systems with one singular endpoint

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报告摘要：

The main object of this paper is to study the essential numerical range of the Hamiltonian system with one singular endpoint under perturbations. We give two new concepts of left-form and form perturbations small at singular endpoints, which are new even for Sturm-Liouville operators. Based on characterizations of the essential numerical range and the essential spectrum, we obtain the stability of essential numerical ranges under these perturbations. A key feature of these perturbations is that they are given by using the associated pre-minimal operator H_{00}. This provides great convenience to study essential numerical ranges of Hamiltonian systems since elements of the domain $D(H_{00})$ have compact support. Applying them, essential numerical ranges of some systems are obtained, and a sufficient condition for the invariance of the essential numerical range is given in terms of coefficients of the system. In particular, some interesting results on the stability of essential numerical ranges are achieved for Sturm-Liouville operators in terms of their coefficients.
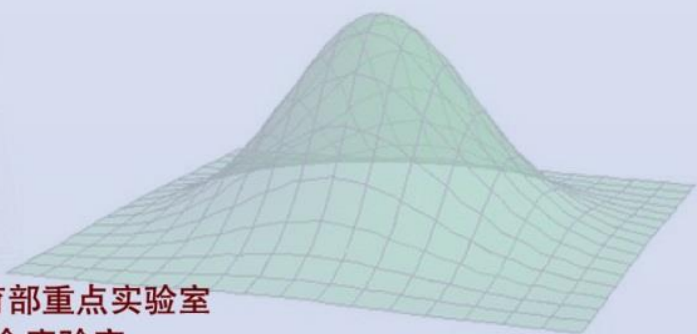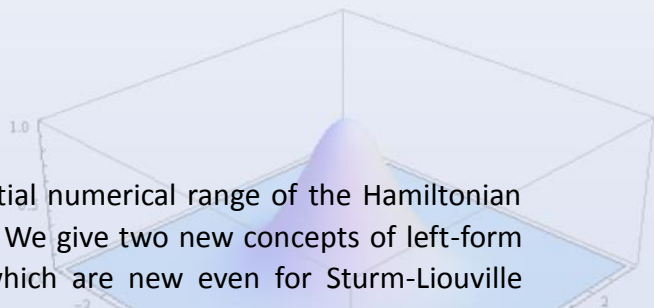
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