



复旦大学数学科学学院  
数学综合报告会

报告题目：**创新研究群体学术报告-Resonances in Physics and Chemistry and the Complex Absorbing Potential method**

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摘要： We give an introduction to the mathematical study of resonances starting from the familiar notion of an eigenvalue. Several examples from physics and chemistry are provided. The Complex Absorbing Potential (CAP) method is widely used to approximate resonances, both for nonrelativistic and relativistic Hamiltonians. We provide an introduction to the method and, in the semiclassical limit  $\hbar \rightarrow 0$  we consider resonances near the real axis and we establish the CAP method rigorously for the perturbed Dirac operator by proving that individual resonances are perturbed eigenvalues of the nonselfadjoint CAP Hamiltonian, and vice versa. The proofs are based on pseudodifferential operator theory and microlocal analysis.

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