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Fredholm Property of the Linearized Boltzmann Operator for a Mixture of Polyatomic Gases

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In this talk, we consider the Boltzmann equation that models a mixture of polyatomic gases assuming the internal energy to be continuous. Under some convenient assumptions on the collision cross-section, we prove that the linearized Boltzmann operator L is a Fredholm operator. For this, we write L as a perturbation of the collision frequency multiplication operator. We prove that the collision frequency is coercive and that the perturbation operator is Hilbert-Schmidt integral operator.

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