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High Energy Limits of Laplace-type Eigenfunctions and Frame Flows

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This is on a joint work with D. Jakobson. We relate high-energy limits of Laplace-type and Dirac-type operators to frame flows on the corresponding manifolds, and show that the ergodicity of frame flows implies quantum ergodicity in an appropriate sense for those operators. Observables for the corresponding quantum systems are matrix-valued pseudodifferential operators and therefore the system remains non-commutative in the high-energy limit. We discuss to what extent the space of stationary high-energy states behaves classically.