

## **The spectrum of semi-classical transfer operator for expanding-semi flows with holes.**

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In this talk, I consider expanding semi-flows given as suspensions of angle multiplying maps on the circle and discuss about the spectrum of associated transfer operators. Suppose that we make a hole in the system and ask whether we can get a better (or smaller) bound on the essential spectral radius. This problem is not simple and seems to have the same root as a prominent problem about the resonance of "chaotic scattering". In fact, the real problem happens when the set of points that remain in the system forever has Hausdorff dimension larger than a "half" of the full dimension  $d=1$  in the direction transversal to the flow. We present a results which improve "half" to "two thirds" under generic assumptions on the roof function.