

## Schrödinger operators with singular potentials: some properties and applications

Cristian Cazacu <sup>1</sup>

Department of Mathematics, University of Bucharest

`cristian.cazacu@fmi.unibuc.ro`

We consider operators of the form  $P - \lambda W$ ,  $\lambda \geq 0$ , where  $P$  is a second order differential operator (typically the Laplacian or the magnetic Laplacian) and  $W$  denotes (typically) a positive Hardy weight with quadratic singularities. For such operators we discuss various properties such as positivity, criticality, optimality, spectral properties, etc. Then we emphasize how such operators apply to study the well-posedness and the asymptotic behavior of some evolution PDEs with singular coefficients.

---

<sup>1</sup>Member in the research group of the project PN-II-RU-TE- 2014-4-0007, “Simion Stoilow” Institute of Mathematics of the Romanian Academy, Bucharest, Romania.