GILLES CARRON
(Université de Nantes)

Spectral geometry on Schrödinger operators and applications

Abstract. Schrödinger operators appear naturally in geometric analysis, for instance in the study of scalar curvature in a conformal class through the Yamabe operator, in the study of minimal hypersurfaces through the stability operator, or in Böchner formula.

Our first lecture will concentrate on some basic facts about the spectrum of such operators. In our second and third lectures, we will study the existence of positive Green functions for such operators. Possibly, I will review results and proofs of nice papers by P. Castillon and by P. Li and J. Wang.

REFERENCES

[1] E. B. Davies, *Heat Kernels and Spectral Theory*, Cambridge Tracts in Mathematics **92**, Cambridge Univ. Press, Cambridge, 1989.

[2] E. B. Davies, *Spectral Theory and Differential Operators*, Cambridge Studies in Advanced Mathematics **42**, Cambridge University Press, Cambridge, 1995.

[3] A. Grigor'yan, *Heat Kernel and Analysis on Manifolds* AMS/IP Studies in Advanced Mathematics **47** (2009).

[4] S. Pigola, M. Rigoli, A.G. Setti, *Vanishing and finiteness results in geometric analysis: a generalization of the Bochner technique.* Progress in Mathematics **266** (2008), Birkhäuser.

[5] P. Castillon, *An inverse spectral problem on surfaces*, Comment. Math. Helv. **81** (2006), no. 2, 271286.

[6] P. Li and J. Wang, *Complete manifolds with positive spectrum*, J. Differential Geom. **58** (2001), no. 3, 501534.