Alexander Teplyaev* (teplyaev@member.ams.org), Department of Mathematics, University of Connecticut, Storrs, CT 06269-1009. Spectral analysis on non-smooth spaces. Preliminary report.

The talk will outline recent achievements and challenges in spectral and stochastic analysis on non-smooth spaces that are very singular, but can be approximated by graphs or manifolds. In particular, the talk will present two of most interesting examples that are currently under investigation. One example deals with the spectral analysis of the Laplacian on the famous basilica Julia set, the Julia set of the polynomial $z^2 - 1$. This is a joint work with Luke Rogers and several students at UConn. The other example deals with spectral analysis for the canonical diffusion on the pattern spaces of an aperiodic Delone set. This is a joint work with Patricia Alonso-Ruiz, Michael Hinz and Rodrigo Trevino. (Received September 11, 2017)