Quenched Voronoi Percolation and related Noise

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A sequence of boolean functions $f_n : \{0,1\}^n \to \{0,1\}$ is *Noise Sensitive* if a small perturbation of the input ω causes almost all information about the outputs $f_n(\omega)$ to be lost. This talk will begin with a brief overview of the history of the subject of Noise Sensitivity, since its introduction by Bejamini, Kalai and Schramm.

Bejamini, Kalai and Schramm also expressed an interest in determining which other types of partial information turn out to be useless. In particular, they conjectured that knowing the set of points which generate a Voronoi tiling gives asymptotically no information about the event of a crossing in the resulting coloured Voronoi Percolation configuration. We discuss a proof of this conjecture. The proof relies on connecting recent progress of Tassion on Voronoi crossing probabilities with the results of the established noise sensitivity theory. As a by-product of our approach we prove noise sensitivity (in the traditional sense) of quenched Voronoi percolation. [Based on joint work with Daniel Ahlberg, Robert Morris and Vincent Tassion]