- Title: Random weighted projections, random quadratic forms and random eigenvectors

  Abstract: We start with a simple, yet useful, concentration inequality concerning random weighted projections in high dimensional spaces. The inequality is then used to prove a general concentration inequality for random quadratic forms. In another application, we show the optimal infinity norm is $O(\sqrt{\log n/n})$ for most unit eigenvectors of a large class of random matrices, including the adjacency matrix of Erdős-Rényi random graphs. This is joint work with Van Vu.