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Fitting matrices from applications to random vectors

What can be determined about the inverse A^{-1} of a matrix A from one application of A to a vector of random entries? If the n-by-n inverse A^{-1} belongs to a specified linear subspace of dimension p, then come to the talk to hear which assumptions on this subspace, p, and n, guarantee an accurate recovery of A^{-1} with high probability. This randomized fitting method provides a compelling preconditioner for the wave-equation Hessian (normal operator) in seismic imaging. Joint work with Pierre-David Letourneau (Stanford) and Jiawei Chiu (MIT).