1172-35-345   **Joshua Isralowitz*** (`jisralowitz@albany.edu`), NY , and **Blair Davey**. *Agmon theory for uniformly elliptic systems with a positive semidefinite matrix potential.* Preliminary report.

In this talk, we develop the Agmon theory and prove exponential decay estimates for the fundamental solution of a uniformly elliptic system with a matrix reverse Holder potential.

Furthermore, we discuss the existence of the fundamental solution of certain elliptic systems with a positive semidefinite matrix potential (including Schrodinger operators). Finally, we discuss a closely related new matrix weighted Poincare inequality with gains and apply this to the Holder regularity of certain matrically degenerate elliptic PDEs.

Time permitting, we will discuss the issue of a matrix weighted analogue of the classical Chanillo-Wheeden condition and related matrix weighted Poincare inequalities. This is joint work with Blair Davey (Received August 31, 2021)