1117-47-349 **Kelly Bickel*** (`kelly.bickel@bucknell.edu`), **Stefanie Petermichl** and **Brett Wick**.
Operators on Matrix Weighted L^2 Spaces.

Every Calderón-Zygmund operator is bounded on $L^2(w)$ if w is a scalar A_2 weight and any such operator's norm depends (at most) linearly on the A_2 characteristic of w. For matrix weights W, the matrix A_2 conjecture, namely whether operator norms depend linearly on the A_2 characteristic of W, is open even for simple operators. In this talk, we will discuss results related to the matrix A_2 conjecture. These include improved bounds for the norms of certain Calderón-Zygmund operators, such as the Hilbert transform, on matrix weighted L^2 spaces and a two-weight $T(1)$ theorem for band operators on matrix weighted L^2 spaces. (Received January 17, 2016)