1062-42-235 **Peter Luthy*** (pml25@cornell.edu), 310 Malott Hall, Cornell University, Ithaca, NY 14850.

Multilinear maximal operators, ergodic averages, and AKNS systems. Preliminary report.

Boundedness properties of maximal operators and questions of pointwise convergence are deeply connected. For instance, in C. Fefferman's proof of Carleson's Theorem that the Fourier series of any square-integrable, periodic function on the line converges pointwise almost everywhere, the main argument establishes boundedness properties of a particular maximal operator. In ergodic theory, almost everywhere convergence properties of multilinear averages are of interest, and so boundedness properties of maximal multilinear operators are important. To that end, we discuss a generalization of such a multilinear result due to C. Demeter, T. Tao, and C. Thiele, which itself extends a bilinear theorem of M. Lacey. We will also discuss how this generalization relates to a family of differential equations known as AKNS systems. (Received August 10, 2010)