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Andreas L. Ruffing* (ruffing@ma.tum.de), Munich University of Technology, Department of Mathematics, Boltzmannstrasse 3, Garching, Germany. *A Fourier Transform on a Basic Adaptive Grid.*

We start from the problem of investigating the spectral behavior of a formally symmetric difference operator on a basic adaptive grid. This corresponds to constructing a discrete Fourier transform for the functions living on the lattice. It turns out that the difference operator under consideration is also symmetric and compact, hence all available functional analytic tools can be applied straight ahead and reveal some amazing properties of the mapping. (Received September 22, 2006)