1022-39-137   **Klaus Guerlebeck*** (`guerlebe@fossi.uni-weimar.de`), Bauhaus-University Weimar, Institute fof Mathematics/Physics, Coudraystr. 13 B, D-99421 Weimar, Germany. *On finite difference Dirac operators.*

We discuss several possibilities to define finite difference approximations of the Dirac operator in the Euclidean space. Such approximations should factorize discrete Laplacians and define kernels for discrete versions of the Cauchy integral and the Teodorescu transform. Recent results by several authors allow to define also lattice functions which play the role of polynomials or exponential functions, respectively, and to prove a discrete Fischer decomposition. We define primitives of discrete monogenic functions. As an example the discrete function theory will be applied to the solution of discrete Vekua equations. (Received September 12, 2006)