1067-45-996   **P. P.B. Eggermont*** (`eggermon@udel.edu`), Food and Resource Economics, 224 Townsend Hall - 531 South College Avenue, University of Delaware, Newark, DE 19717-1303, and **V. N. LaRiccia** and **M. Z. Nashed**. *Moment discretization of ill-posed problems with discrete weakly bounded noise.* Preliminary report.

We study ill-posed operator equations with weakly bounded noise. The objective is to obtain error bounds on the approximate solution when the weakly bounded noise becomes "small", i.e., when it converges weakly to zero. In the setting of moment discretization, we must deal with a discrete version of weakly bounded noise. This is defined using quadratic forms in the noise involving a positive definite kernel, chosen in accordance with the operator equation under discussion. This naturally leads to reproducing kernel Hilbert spaces, which is of course is the proper setting for moment discretization problems. We derive optimal convergence rates for Tikhonov regularization. Possible extensions to regularization by conjugate gradient methods are explored. (Received September 17, 2010)