# NONLINEAR ERGODIC THEOREMS FOR NONEXPANSIVE SEMIGROUPS AND SOLUTIONS OF NONLINEAR EVOLUTION EQUATIONS

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In this talk, we deal with weak and strong convergence theorems for families of nonexpansive mappings in Hilbert spaces or Banach spaces. We first discuss nonlinear weak ergodic theorems for nonexpansive semigroups in uniformly convex Banach spaces and nonlinear strong ergodic theorems for nonexpansive semigroups with compact domains in strictly convex Banach spaces. Next, we deal with weak and strong convergence theorems for one-parameter nonexpansive semigroups and accretive operator inclusions in Hilbert spaces or Banach spaces. Finally, we apply these results to discuss the asymptotic behavior of solutions of nonlinear evolution equations and the problem of finding a minimizer of a proper lower-semicontinuous convex function concerning the proximal point algorithm.

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