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Ergodic theory is concerned with the action of a transformation T or group of transformations G on a space X. The space X usually has some measure-theoretic, topological, or smooth structure which T or G preserves. Typical of the kinds of questions asked is the early recurrence theorem of Poincaré, which states that if T preserves a finite measure then almost every point in any set of positive measure must return to the set under the action of T. The much deeper convergence theorems of von Neumann and Birkhoff triggered considerable