Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-47-102 **Mohammed Yahdi*** (myahdi@ursinus.edu), Ursinus College, Department of Math & C.S., Collegeville, PA 19426. *Super-Ergodic Operators and Descriptive Set Theory.*

The aim of this work is to study operators naturally connected to Ergodic operators in an infinite dimensional Banach Space; such as Uniform-Ergodic, Super-Ergodic, Cesro-Bounded and Power-Bounded operators. Several new relationships between these operators are shown, and other known results are proven to be optimal or can be ameliorated according to structural properties of the Banach Space; such as the reflexivity, the superreflexivity or with complemented subspace with unconditional basis. Moreover, techniques from "Descriptive Set Theory" are applied in order to study the "Topological Complexity" of families of these operators. Most of these failies are shown to be Borel sets of class $\sum_2^0$ to $\prod_4^0$, while the family of Super-Ergodic operators is shown to be either coanalytic or Borel according the the structure of the Banach Space. (Received August 06, 2004)