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P.O. Box 208283, New Haven, CT 06520-8283. *Homogeneous dynamics and number theory I.*

Homogeneous dynamics is another name for the theory of flows on homogeneous spaces, or homogeneous flows. The study of homogeneous flows has been attracting considerable attention for the last 40-50 years. During the last three decades, it has been realized that some problems in number theory and, in particular, in Diophantine approximation, can be solved using methods from the theory of homogeneous flows. The purpose of this lecture is to give examples of the interaction between number theory and the theory of homogeneous flows. Mostly only formulations will be given, but there will be also very brief description of some proofs. (Received September 12, 2008)