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Christian Wolf* (cwolf2@ccny.cuny.edu), City College of New York, Department of Mathematics, New York, NY 10031. *Boundary regularity of rotation sets.*

Let $T : X \rightarrow X$ be a continuous transformation on a compact metric space, and let ϕ_1, \dots, ϕ_n be continuous observables. The rotation set $R_T(\phi_1, \dots, \phi_n)$ is the set of all μ -integral vectors where μ runs over all invariant probability measures. It is easy to see that the rotation set is a compact, convex subset of R^n . In particular, it has a Lipschitz boundary. In this talk we discuss the opposite question, namely is every set with these properties attained as a rotation set of a particular set of potentials within a particular class of dynamical systems. We give a positive answer in the case of shift maps and also provide criteria implying that the boundary of the rotation set is piecewise smooth. (Received September 14, 2010)