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**Catalin Georgescu\*** (cgeorges@usd.edu), Department of Mathematical Sciences, Dakota Hall, 414 East Clark Street, The University of South Dakota, Vermillion, SD 57069. *Detection of the connecting orbits using the boundary map in Conley index theory.*

The purpose of this talk is to present a result which shows that the image of the homological boundary map attached to a filtration for an attractor-repeller pair of a smooth flow on a compact manifold is a submodule of the Alexander cohomology of certain order of the connecting set (some restrictions have to be imposed in order to have a valid argument). In particular, this gives an affirmative answer to an open question in Conley index theory which states that if the boundary map is not zero in two dimensions, the connecting set can not be contractible. (Received July 04, 2005)