

**Meeting:** 1003, Atlanta, Georgia, SIAMMINI1, SIAM Minisymposium on Undergraduate Linear Algebra and Differential Equations: Projects, Problems, and Issues

1003-34-538      **Shu-Xiang Yu\*** (ysx@math03.math.ac.cn), Institute of Mathematics, Academia Sinica, 100080 Beijing, Peoples Rep of China. *On the compactness of the set of bounded orbits for a differential system.* Preliminary report.

In his monograph “Isolated Invariant Sets and the Morse Index”, Conley studied the flows on  $R^n$  such that the set of bounded orbits is compact and proposed the following problem: Suppose  $V(x)$  is a smooth function on  $R^n$  with  $\|\nabla V\| \geq \varepsilon$  for  $|x| \geq R$ . Is it true that the set of bounded solutions of  $\frac{dx}{dt} = y$ ,  $\frac{dy}{dt} = \theta y - \nabla V(x)$  is compact whenever  $\theta \neq 0$ ? In this paper, using the notion of an isolating block, a positive answer in the case  $n = 1$  to this problem is given.

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