1038-76-305   **Volker W Elling*** (`velling@umich.edu`), University of Michigan, Department of Mathematics, 530 Church St., Ann Arbor, MI 48109. *Regular reflection below the sonic angle.*

In previous work the author has constructed regular reflection as an exact self-similar solution of potential flow. In some cases the solution can be constructed for all wall angles allowed by the *sonic criterion*, i.e. so that the reflected shock has a hyperbolic region on both sides. The *detachment criterion* predicts regular reflection for *all* angles that allow a reflected shock, including those with an elliptic region on one side. We discuss how to rigorously prove existence and nonexistence of solutions in the hyperbolic-elliptic cases. (Received February 12, 2008)