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**Volker W Elling\*** ([velling@umich.edu](mailto:velling@umich.edu)), University of Michigan, East Hall, 530 Church St, Ann Arbor, MI 48105. *Non-existence of strong regular reflections in self-similar potential flow.*

We consider shock reflection which has a well-known local non-uniqueness: the reflected shock can be either of two choices, called weak and strong. The weak kind may have flow of mixed type on the downstream side where the strong type is always elliptic.

We consider cases where existence of a global solution with weak reflected shock has been proven, for compressible potential flow. If there was a global strong-shock solution as well, then potential flow would be ill-posed. However, we prove non-existence of strong-shock analogues in a natural class of candidates. (Received June 20, 2011)