

Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

When does the dipole caused by the motion of a two-dimensional body vanish? STEFAN LLEWELLYN SMITH, SEBASTIEN MICHELIN, Department of Mechanical and Aerospace Engineering, UCSD, DARREN CROWDY, Department of Mathematics, Imperial College — The fluid velocity far from a translating body in two-dimensional irrotational flow is dipolar. This is a classical result. Here we ask when the dipolar component vanishes. Lamb (1945, § **126**) provides symmetry conditions on the virtual mass tensor for this to be the case. We show that these conditions are not necessary and obtain the sufficient and necessary condition in terms of the shape of the body using conformal maps. The applicability of the condition is discussed.

Stefan Llewellyn Smith
Department of Mechanical and Aerospace Engineering, UCSD

Date submitted: 31 Jul 2007

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