1119-37-98 **Hieu Do** and **Thomas A Schmidt*** (toms@math.orst.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97331. *Characterization of pseudo-Anosov homeomorphisms with vanishing Sah-Arnoux-Fathi invariant.* Preliminary report.

Interval exchange transformations (IET) form a group under composition. There is a natural homomorphism from this group to the wedge product of $\mathbb{R}$ with itself (over $\mathbb{Q}$), whose value on an IET is called the Sah-Arnoux-Fathi (SAF) invariant. By taking a full transversal to the linear flow in a fixed direction on a flat (actually, translation) surface, one obtains an IET. The SAF-invariant is independent of choice of full transversal, and in particular to each (orientable) pseudo-Anosov (pA) on a translation surface we can associate the SAF-invariant of its stable flow. We show that a pA has vanishing SAF-invariant if and only if the minimal polynomial of the dilatation of the pA is not reciprocal of even degree. We sketch some applications. (Received February 10, 2016)