1086-37-2006 **David J Cosper*** (dcosper314@gmail.com), Dept. of Mathematics - UAB, Birmingham, AL 35294-1170. *Identity Return Triangles For Cubic Laminations.* Preliminary report.

A *lamination* $\mathcal{L}$ is a closed collection of chords of the closed unit disk $\overline{\mathbb{D}}$ which do not intersect except at vertices. Laminations are used to study Julia sets abstractly. We are interested in invariant laminations under the map $\sigma_d(t) = dt \pmod 1$ where $t \in [0, 1)$. A *gap* in a lamination $\mathcal{L}$ is the closure of a component of $\overline{\mathbb{D}} \setminus \cup\mathcal{L}$. A finite gap is called a *polygon*. An *identity return polygon* (IRP) is a polygon which maps away from itself, while also preserving circular order, and eventually maps back to itself by the identity, and whose images are pairwise disjoint. Kiwi proved that the number of sides of an IRP cannot exceed the degree d of the map σ_d. Some open questions about σ_d are

1. What is the minimum period of an IRP?
2. Do all periods above the minimum occur?
3. Given 3 points of a given period p, what are the criteria for forming an identity return triangle?
4. Given a period p, how many IRPs may be formed?

We show that for any d, no identity return d-gon of period $p = 2$ can exist under σ_d, though period $p = 2$ triangles may exist for all $d > 3$. (Received September 24, 2012)