1108-53-386 **Brendan J Foreman*** (bforeman@jcu.edu), John Carroll University, Department of Math/CS, 20700 N. Park Boulevard, University Heights, OH 44118. *A vertex-type theorem on the projective plane and its applications to curve theory on* $\mathbb{H}^2 \times \mathbb{R}$. Preliminary report.

In this talk, we will present a vertex-type theorem to curves in the projective plane. Namely, we will prove that, if Γ is a strictly convex curve in $\mathbb{R}^2$ whose image is closed in the projective plane and if l_1 and l_2 are distinct lines tangent to Γ, then there are at least four conics that are tangent to both l_1 and l_2 and have contact order of at least three with Γ.

We will then show how this theorem has been recently refined by M. Umehara and G. Thorbergsson in such a way that we can develop vertex-type theorems for closed curves in $\mathbb{H}^2 \times \mathbb{R}$ with respect to constant angle surfaces. (Received January 19, 2015)