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**Barry Minemyer\*** ([bminemyer@bloomu.edu](mailto:bminemyer@bloomu.edu)), 400 E. Second St., 212 Ben Franklin Hall,  
Bloomsburg, PA 17815. *Real hyperbolic hyperplane complements in the complex hyperbolic plane.*

In this talk we will discuss Riemannian manifolds of the form  $M \setminus S$ , where  $M^4$  is a complete four dimensional Riemannian manifold with finite volume whose metric is modeled on the complex hyperbolic plane  $\mathbb{C}\mathbb{H}^2$ , and  $S$  is a compact totally geodesic codimension two submanifold whose induced Riemannian metric is modeled on the real hyperbolic plane  $\mathbb{H}^2$ . The main results in the paper to be presented are as follows. We will discuss how to write the metric on  $\mathbb{C}\mathbb{H}^2$  in polar coordinates about  $\mathbb{H}^2$ , compute formulas for the components of the curvature tensor in terms of arbitrary warping functions, and prove that there exist warping functions that yield a complete finite volume Riemannian metric on  $M \setminus S$  whose sectional curvature is bounded above by a negative constant. The cases of  $M \setminus S$  modeled on  $\mathbb{H}^n \setminus \mathbb{H}^{n-2}$  and  $\mathbb{C}\mathbb{H}^n \setminus \mathbb{C}\mathbb{H}^{n-1}$  were previously studied by Belegradek. (Received September 20, 2018)