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Christian R Millichap* (christian.millichap@gmail.com), 506 Shelbourne Road, Havertown, PA 19083. *Hyperbolic pretzel knots with the same volume and systole length.*

The volume and systole length of a hyperbolic 3-manifold are two of the most commonly studied geometric invariants. It is natural to ask how often such manifolds can have the same volume, the same systole length, or perhaps even both. In this talk, we shall construct large families of hyperbolic pretzel knots whose complements have both the same volume and systole length. In particular, we shall show that the number of hyperbolic knot complements with the same volume and systole length grows at least factorially fast with the volume and the number of twist regions. This proof relies on Ruberman's work on mutations along Conway spheres in least area form that preserve volume, and expanding this analysis to see when these Conway spheres could intersect short geodesics in a hyperbolic 3-manifold. (Received January 20, 2014)