Kevin P. Scannell* (scannell@slu.edu) and Anneke Bart (barta@slu.edu), Department of Mathematics and Computer Science, Saint Louis University, St. Louis, Missouri, 63103. Cohomology constructions for hyperbolic knot and link complements.

The primary examples of deformations of flat conformal structures on hyperbolic 3-manifolds are the bending deformations introduced in the 1970’s by Thurston and Apanasov. A first-order deformation of this type is given by an element of first cohomology with coefficients in the Lie algebra of $SO(4,1)$. In the case of bending, a natural representative cocycle can be chosen which is supported on the bending hypersurface.

We present new constructions of first-order deformations into $SO(4,1)$ for certain hyperbolic knot and link complements. These cohomology classes are supported on piecewise totally geodesic two-complexes that are not isotopic to embedded totally geodesic surfaces; indeed, examples can be realized within manifolds containing no immersed totally geodesic surfaces.