1102-57-204 **Shelly Harvey*** (shelly@rice.edu) and **Thomas Cochran**. *The Geometry of Knot Concordance Spaces.*

Most of the 50-year history of the study of the set of smooth knot concordance classes, $\mathcal{C}$, has focused on its structure as an abelian group. Here we take a different approach, namely we study $\mathcal{C}$ as a metric space admitting many natural geometric operators, especially satellite operators. We consider two metrics d_s and d_H on $\mathcal{C}$, coming from the slice genus norm and the homology norm. We establish the existence of quasi-n-flats for every n, implying that $\mathcal{C}$ admits no quasi-isometric embedding into a finite product of (Gromov) hyperbolic spaces. We show that every satellite operator is a quasi-homomorphism $P\colon \mathcal{C} \to \mathcal{C}$. We show that winding number one satellite operators induce quasi-isometries. Note that all of these results are true for either metric. In addition, we prove that if the smooth 4-D Poincare conjecture is true then strong winding number one satellite operators induce isometric embeddings for the homology metric. By contrast, winding number zero satellite operators are bounded functions and hence quasi-contractions. These results contribute to the conjecture that $\mathcal{C}$ is a fractal space. (Received July 28, 2014)