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Classifying Polygonal Chains of Six Segments

A polygonal chain is the union of a finite number of straight line segments in $\mathbb{R}^3$ that are connected end-to-end. Two chains are considered to be equivalent if there is an isotopy of $\mathbb{R}^3$ that moves one chain to the other while keeping the segments rigid. Each segment must remain straight during the isotopy and the lengths of the segments may not change, but bending and twisting are allowed at the joints between the segments. Chains may be knotted and stuck in this category even though all chains are topologically trivial. Cantarella and Johnston have classified polygonal chains with 5 or fewer segments. In this talk I will describe and classify all polygonal chains of 6 segments.