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Coverings of Montesinos knots of the second kind

A Montesinos knot $k \subset S^3$ is a link that has a Seifert manifold as double branched covering, $B_2(k)$, and such that k is not a union of fibers of a Seifert fibering of the 3-sphere (this is not an exact definition, but the exceptions are few and non-interesting for us).

For the first kind of Montesinos knots, the double branched covering is an orientable Seifert manifold with orbit surface the 2-sphere. A Montesinos knot k is of the second kind, if $B_2(k)$ is an orientable Seifert manifold with orbit surface a non-orientable surface.

For a Montesinos knot k of the first kind, it is known how to get the 3-sphere as a dihedral branched covering of (S^3, k). We explain how to obtain the 3-sphere as a dihedral covering, and also as a 'meta-dihedral' branched covering of (S^3, k). These last 'meta-dihedral' coverings show a surprising and very interesting similarity with the study of Montesinos knots of the first kind.

Joint work with Jair Remigio.