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Fibrator Properties of Partially Aspherical Manifolds

This talk is based on joint work with Young Ho Im and Yongkuk Kim. A closed n-manifold N is a codimension-k PL fibrator in the orientable category if for each orientable $(n+k)$-manifold M^{n+k} and PL map $p\colon M \to B$ to a simplicial complex B such that each $p^{-1}(b)$, $b \in B$, is a copy of N (or, more generally, collapses to an n-complex homotopy equivalent to N), the map p is an approximate fibraion. N is said to be t-aspherical if its universal cover is t-connected. A key result is that closed manifolds N which are both t-connected and codimension-2 PL fibrators are then codimension-$(t+1)$ PL fibrators. Furthermore, when $t > n/2$, N has even richer PL fibrator properties, which will be described.

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