Manifolds with positive sectional curvature

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Although manifolds with positive curvature have been a frequent subject in global Riemannian geometry, not much is known about obstructions and there are also very few known examples. I will discuss some candidates for new examples in dimension 7, which came out of a classification of positively curved cohomogeneity one manifolds and are connected to other geometries such as self dual Einstein orbifolds, 3-Sasakian geometry and fatness of bundles.