

THE MAXIMAL SYMMETRY RANK CONJECTURE FOR NON-NEGATIVE
CURVATURE

Abstract: A reformulated version of the Maximal Symmetry Rank conjecture for non-negative curvature states:

Maximal Symmetry Rank Conjecture. *Let T^k act isometrically and effectively on M^n , a closed, simply-connected, non-negatively curved Riemannian manifold. Then*

(1) $k \leq \lfloor 2n/3 \rfloor$;

(2) Moreover, when $k = \lfloor 2n/3 \rfloor$, M is equivariantly diffeomorphic to

$$N = \prod_{i \leq r} S^{2n_i+1} \times \prod_{i > r} S^{2n_i},$$

with $r \geq 2k - n$, or in the case $n \not\equiv 0 \pmod{3}$, the quotient of N by a free linear action of a torus of rank less than or equal to $2n \pmod{3}$.

I will talk about joint work in progress with Christine Escher on this conjecture.