Non-negative sectional curvature on stable classes of vector bundles

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Abstract:

We will discuss the following question, motivated by Cheeger-Gromoll's Soul Theorem: given a vector bundle E over a compact manifold, does the product $E \times R^k$ admit a metric with non-negative sectional curvature for some k? We will give an affirmative answer for every vector bundle over (almost) any homogeneous space with positive curvature. We will extend this result to include further classes of homogeneous spaces, and we will show that the question above is stable under tangential homotopy equivalences. This is joint work with Marcus Zibrowius.

Monday, September 18, 2017, 16:00

MathII 0.101 (Lonza)