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Linear actions of $\mathbb{Z}/p \times \mathbb{Z}/p$ on $S^n \times S^n$. Preliminary report.

In 1925, Hopf first stated the “spherical space form” asking which groups act freely on S^n . Some fifty years later, Madsen, Thomas, and Wall proved in 1978 that certain necessary conditions—discovered by Smith in 1944 and Milnor in 1957—were in fact sufficient. Easy generalizations of this question, like determining which groups G can act freely on $S^n \times S^n$, are still open.

This talk considers the situation of “linear” actions of $\mathbb{Z}/p \times \mathbb{Z}/p$ on $S^n \times S^n$ which can be understood by relating them to the easier case of \mathbb{Z}/p actions on S^n , that is, to lens spaces. (Received September 26, 2017)