Spring 2025

Geometry and Topology Seminar

Title

The Seiberg-Witten equations on end-periodic manifolds and an obstruction to positive scalar curvature metrics

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Time: 10:30AM

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Abstract: By studying the Seiberg–Witten equations on end-periodic manifolds, we give an obstruction on the existence of positive scalar curvature metric on compact 4-manifolds with the same homology as $S^1 \times S^3$. This obstruction is given in terms of the relation between the Frøyshov invariant of the generator of $H_3(X;\mathbb{Z})$ with the 4-dimensional Casson invariant $\lambda_{SW}(X)$ defined in [Mrowka, Ruberman and Saveliev, J. Differential Geom. 88 (2011) 333–377]. Along the way, we develop a framework that can be useful in further study of the Seiberg–Witten theory on general end-periodic manifolds.