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SIPo (Seminario de Investigadores Postdoctorales)

Speaker: Maria Fernanda Espinal Florez (CMM).

Title: The k-Yamabe flow and its solitons.

Abstract: The Yamabe problem is a classical question in conformal geometry that seeks for existence of metrics with constant scalar curvature within a conformal class. The problem was posed by H. Yamabe in 1960 as a possible extension of the famous uniformization theorem, which states that every simply connected Riemann surface is conformally equivalent to the open unit disk, the complex plane or the Riemann sphere. After the conjecture was already confirmed by the work of R. Schoen, an alternative approach was proposed by R.Hamilton in 1989. He suggested to use a geometric flow, which is now known as the Yamabe flow. The k-Yamabe flow is a fully non-linear extension to the Yamabe flow that appears naturally in problems related to topological classification in higher dimensions. In this talk we describe the construction, classification and asymptotic behavior of radially symmetric gradient k-Yamabe solitons that are locally conformally flat [ES24], these are special solutions to this flow that play a central role in the theory. Our study extends the results obtained by P. Daskalopouolos and N. Sesum in [DS13] in the case n > 2k.

Joint work with Mariel Sáez.

References

[DS13] Panagiota Daskalopoulos and Natasa Sesum. The classification of locally conformally flat yamabe solitons. Advances in Mathematics, 240:346–369, 2013.

[ES24] Mar´ıa Fernanda Espinal and Mariel S´aez. On the existence and classification of k-yamabe gradient solitons. arXiv preprint arXiv:2410.06942, 2024.

Date & Time: 17th March (Monday), 2.30PM
Venue: Jacques L Lions Seminar Room, CMM, Beauchef 851, North Tower, 7th Floor