

Seminari de Geometria Algebraica 2016-2017

Divendres 3 de febrer a les 15:00, aula T2 FMI-UB

<http://www.ub.edu/sga/>

GRAVITATING VORTICES, COSMIC STRINGS, AND ALGEBRAIC GEOMETRY

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Y. Yang observed 20 years ago that the 2–sphere is the only compact orientable surface admitting solutions of the Einstein-Bogomol’nyi equations, describing Nielsen-Olesen cosmic strings, and obtained sufficient conditions for the existence of these cosmic strings in this situation. In this talk, we will give an algebro-geometric interpretation of Yang’s conditions, and explain why they are in fact necessary for the existence of solutions. The key ideas, coming from the theory of quotient spaces in symplectic geometry and algebraic geometry, will also enable us to find suitable generalizations of these equations to higher genus compact Riemann surfaces.

This is joint work with Mario Garcia-Fernandez and Oscar Garcia-Prada (arXiv:1510.03810, arXiv:1606.07699).