

FIM

Minicourse

Nicos Kapouleas (Brown University)

Gluing methods for geometric PDE

November 13 - 22, 2012

ETH Zürich, Rämistrasse 101

Tuesday, November 13, 13:00 - 15:00, HG G 19.1

Thursday, November 15, 13:00 - 15:00, HG G 43

Thursday, November 22, 13:00 - 15:00, HG G 43

Abstract

The purpose of this minicourse is to present a methodology for a class of gluing constructions in Differential Geometry and its application to various problems. This methodology originates from a construction of Constant Scalar Curvature metrics by R. Schoen and Constant Mean Curvature surfaces by the author, and it was refined and systematized in a gluing construction for Wente tori where a „Geometric Principle“ guiding the organization of the construction was proposed. In the introduction I will discuss the problems to which this methodology has been applied and related geometric questions. I will outline then in detail some applications emphasizing differences and similarities in the various problems. In particular I will discuss constructions of Special Lagrangian cones and CMC surfaces, doubling constructions for minimal surfaces, and desingularization constructions for minimal surfaces.

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