Instituto de Matemática

UNIVERSIDADE FEDERAL DE ALAGOAS

UNIVERSIDADE FEDERAL DE ALAGOAS
PROGRAMA DE PÓS GRADUAÇÃO EM MATEMÁTICA

Seminário de Geometria Diferencial & Análise Geométrica

Título: Existence and asymptotic behaviour of solutions of Yamabe-type systems
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Resumo: Our main goal is to study systems of PDE's that from the viewpoint of conformal geometry are pure extensions of Yamabe-type equations in the strongly coupled regime. More specifically we will prove an existence result on a punctured compact manifold for a critical elliptic system of the form

$$(1) \qquad -\Delta_g u_i + \sum_{j=1}^{d} A_{ij}(x) u_j = \frac{n(n-2)}{4} |\mathcal{U}|^{\frac{4}{n-2}} u_i, \quad i = 1, \dots, d$$

where g is a smooth Riemannian metric on M and A is a C^1 map from manifold to the space of symmetrical d × d real matrices. We will also describe the asymptotic behavior near an isolated singularity of local solutions in a punctured ball and show that in low dimensions, these functions are asymptotic to a Fowler-type solution.

Such type of problems provides a natural background for the interplay between geometry and asymptotic analysis.

Joint work with João Marcos do Ó e Almir Santos.

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