

Workshop da Pós-graduação

Sessão Temática de Geometria

Data: 26/11/2019

Local: Auditório da UAMat

Organizador: Profº Marco Antonio Lázaro Velásquez

Programação

Horário	Palestrante	Instituição
14:00 - 14:40	Fábio Reis dos Santos	UFCG - Campina Grande
14:14 - 15:20	Jogli da Silva Araújo	UFRPE
15:20 - 16:00	Kennerson Nascimento de Sousa Lima	UFCG - Campina Grande
16:00 - 16:30	Coffee Break	
16:30 - 17:10	Paolo Piccione	USP
17:10 - 17:50	Eudes Leite de Lima	UFCG - Cajazeiras

Resumos

Palestrante: Fábio Reis dos Santos (UFCG – Campina Grande)

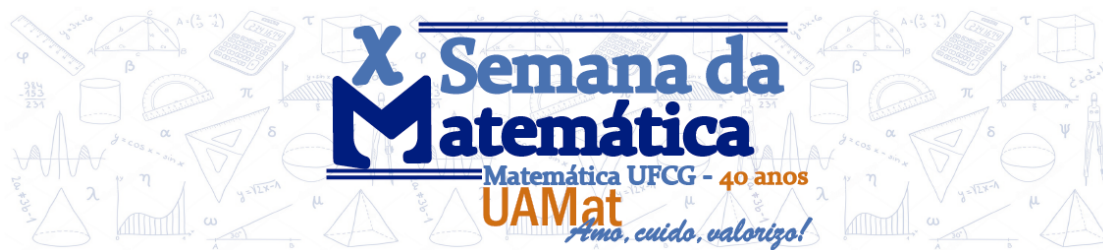
Título: A new approach to minimal and maximal hypersurfaces in product spaces

Resumo: In this talk we introduce a new method for the study of non-degenerate hypersurfaces immersed into product spaces of the form $M^n \times R$, with M^n a Riemannian manifold, which are naturally endowed with two metrics: the standard Riemannian metric $\langle, \rangle_M + dt^2$, and the Lorentzian metric $\langle, \rangle_M - dt^2$. Naturally we can consider two mean curvatures and two Gaussian curvatures associated to the Riemannian and Lorentzian metrics. In this setting, we prove that a hypersurface having zero mean curvature with respect to both metrics must be foliated by hypersurfaces which are minimal submanifolds of the ambient space. As an application we prove that non-degenerate surfaces in a product space with zero mean curvature with respect to both metrics must be open pieces of slices, cylinders over geodesics or helicoids. Furthermore, we characterize flat surfaces as the unique nondegenerate surfaces in the Lorentz-Minkowski space having the same Gaussian curvature with respect to both metrics.

Palestrante: Jogli da Silva Araújo (UFRPE)

Título: Linear Weingarten submanifolds in the hyperbolic space

Resumo: We use suitable maximum principles in order to obtain characterization results concerning n -dimensional linear Weingarten submanifolds immersed with globally flat normal bundle and parallel normalized mean curvature vector field in the $(n+p)$ -dimensional hyperbolic space. In particular, when $p = 2$ we present complete descriptions of these submanifold.



Palestrante: Kennerson Nascimento de Sousa Lima (UFCG – Campina Grande)

Título: Bifurcation and local rigidity of homogeneous solutions to the Yamabe problem on maximal flag manifolds

Resumo: In this work, we construct 1-parameter families of well known solutions to the Yamabe problem defined on maximal flag manifolds. Thereafter, we determine bifurcation instants for these families looking at changes of the Morse index of these metrics when the parameter varies on the interval $[0, 1]$. A bifurcation point for such families is an accumulation point of others solutions to the Yamabe problem and a local rigidity point is a isolated solution of this problem, i.e, is not a bifurcation point.

Palestrante: Paolo Piccione (Universidade de São Paulo)

Título: Colapso de variedades planas e o problema de Yamabe

Resumo: O estudo de soluções para o problema de Yamabe em certas variedades não compactas leva naturalmente a estudar o colapso de variedades compactas planas. Nesta palestra vou apresentar as motivações analítico-geométricas.

Palestrante: Eudes Leite de Lima (UFCG -Cajazeiras)

Título: Sharp bounds for the norm of the second fundamental form of a class of Weingarten hypersurfaces

Resumo: We provide sharp bounds for the squared norm of the second fundamental form of a wide class of Weingarten hypersurfaces in Euclidean space satisfying $H_r = aH + b$, for constants $a, b \in \mathbb{R}$, where H_r stands for the r -th mean curvature and H the mean curvature of the hypersurface. Moreover, we are able to characterize those hypersurfaces where these bounds are attained by showing that it must be a cylinder of the type $\mathbb{R} \times S^{n-1}(p)$.