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# SEMINÁRIO DE GEOMETRIA

Dia 20 de janeiro (sexta-feira), às 14H00, sala 6.2.33

## Surfaces in $\mathbb{R}^7$ obtained from harmonic maps in $S^6$

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Abstract:

We will investigate the local geometry of surfaces in  $\mathbb{R}^7$  associated to harmonic maps from a Riemann surface  $\Sigma$  into the nearly Kähler 6-sphere  $S^6$ . In this setting, the harmonicity of a smooth map  $\varphi: \Sigma \rightarrow S^6$  amounts to the closeness of the differential 1-form  $\omega = \varphi \times *d\varphi$ , where  $\times$  stands for the 7-dimensional cross product. This means that we can integrate on simply-connected domains in order to obtain a map  $F: \Sigma \rightarrow \mathbb{R}^7$ . By applying methods based on the use of harmonic sequences, we will characterize the conformal harmonic immersions  $\varphi: \Sigma \rightarrow S^6$  whose associated immersions  $F: \Sigma \rightarrow \mathbb{R}^7$  belong to certain remarkable classes of surfaces, namely: minimal surfaces in hyperspheres; surfaces with parallel mean curvature vector field; pseudo-umbilical surfaces.

This is a joint work with Pedro Morais.

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