

SEMINÁRIO DE GEOMETRIA

Dia 14 Novembro (quinta-feira), às 14h30, sala 6.2.33

Solid r -twisted Moebius strips as real algebraic surfaces

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Abstract:

For a differentiable function $f: \mathbb{R}^n \rightarrow \mathbb{R}$ and a regular value y , the level set $f^{-1}(y)$ is a smooth $(n-1)$ -dimensional hypersurface without boundary. Thus it is not possible to construct the Moebius strip in this way as it has a 1-dimensional boundary. However, it is possible to construct a solid Moebius strip, i.e. the 2-dimensional boundary of thickened (but thin) 3-dimensional Moebius strip. In fact, some time ago we constructed 1-, 2- and 3-twisted solid Moebius strips with polynomials $f(x,y,z)$ of order 6, 8 and 10 respectively. In the talk we will present a simplified construction of a polynomial of degree $4+2r$ for a solid r -twisted Moebius strip. The construction can be generalized to more complex surfaces with twisted topology such as solid torus knots.

