

Nontrivial compact blow-up sets of lower dimension in a half-space

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Resumen

In this talk we provide examples of blowing up solutions to parabolic problems in a half space, $\mathbb{R}_+^N \times \mathbb{R}^M = \{x_N > 0\} \times \mathbb{R}^M$, with nontrivial blow-up sets of dimension strictly smaller than the space dimension. To this end we prove existence of a nontrivial compactly supported solution to $\nabla(|\nabla\varphi|^{p-2}\nabla\varphi) = \varphi$ in the half space $\mathbb{R}_+^N = \{x_N > 0\}$ with the nonlinear boundary condition $-|\nabla\varphi|^{p-2}\frac{\partial\varphi}{\partial x_N} = \varphi^{p-1}$ on $\partial\mathbb{R}_+^N = \{x_N = 0\}$.

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