## Global approximation theorems in PDEs with applications to minimal graphs and hot spots.

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A global approximation theorem for a differential operator P is a result ensuring that a solution v of P[v] = 0 in a closed set S satisfying some topological assumptions can be approximated by a global solution u of the equation P[u]=0. The theory for elliptic equations has been widely developed. In this talk I will show global approximation theorems for parabolic equations. In addition, I will apply these results to prove the existence of minimal graphs with micro-oscillations as well as solutions of the heat equation with local hot spots with prescribed behavior. This is a joint work with A. Enciso and D. Peralta-Salas.