

BLOW UP OF SOLUTIONS OF SEMILINEAR HEAT EQUATIONS WITH ALMOST HÉNON-CRITICAL EXPONENT

EUGENIO MASSA *

We study the initial value problem

$$\begin{cases} u_t - \Delta u = |x|^\alpha |u|^{\frac{4+2\alpha}{N-2}-\varepsilon} u & \text{in } B_1 \times (0, T), \\ u = 0 & \text{on } \partial B_1 \times (0, T), \\ u = u_0 & \text{in } B_1 \times \{0\}, \end{cases} \quad (0.1)$$

where B_1 is the unitary ball in \mathbb{R}^N , $N \geq 3$, $T \in (0, +\infty]$, $\varepsilon > 0$ is a small parameter and $\alpha > 0$ is a number which is not an even integer. We aim to proving that if $\varepsilon > 0$ is small enough, then there exists a sign changing stationary solution ψ_ε of (0.1), such that the solution of (0.1) with initial condition $u_0 = \lambda\psi_\varepsilon$ blows up in finite time for $|\lambda - 1| > 0$ small enough.

Joint work with S. Alarcón and L. Iturriaga (Universidad Técnica Federico Santa María, Chile).

*Departamento de Matemática, Instituto de Ciências Matemáticas e de Computação, Universidade de São Paulo - Campus de São Carlos, Caixa Postal 668, 13560-970, São Carlos SP, Brazil, email: eug.massa@gmail.com