

**ENTROPY DISSIPATIONS METHODS FOR THE SIGN-CHANGING
SOLUTIONS OF SOME SEMILINEAR HEAT EQUATIONS WITH THE
NONLINEAR BOUNDARY CONDITION**

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We consider the sign-changing solutions of some semilinear heat equation with nonlinear boundary condition: $u_t = \Delta u + f(u)$ in $\Omega \times (0, \infty)$, $\partial u / \partial \nu = |u|^{p-1}u$ on $\partial\Omega \times (0, \infty)$, where Ω is a N -dimensional half space and $p > 1 + 1/N$. In this poster, we assume that the initial data is a L^1 and L^∞ function. Our aims are to study the asymptotic behavior of the L^1 bounded sign-changing solution of the this problem and to study the decay rate of the L^q distance by using entropy dissipations methods.

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