1124-35-133 **Pavel Drabek*** (pdrabek@kma.zcu.cz), NTIS and Department of Mathematics, University of West Bohemia in Pilsen, 306 14 Pilsen, Czech Rep. *Convergence to travelling waves in the Fisher's population genetics model with a non-Lipschitzian reaction term.*

We consider the semilinear Fisher equation for the advance of an advantageous gene in biology:

$$\begin{cases} \dfrac{\partial u}{\partial t} - \dfrac{\partial^2 u}{\partial x^2} = f(u) \quad \text{for } (x,t) \in \mathbb{R} \times \mathbb{R}_+ \,; \\ \quad u(x,0) = u_0(x) \quad \text{for } x \in \mathbb{R} \,. \end{cases}$$

In contrast with previous works, we relax the differentiability hypothesis on f to being only Hölder-continuous and "one-sided" Lipschitz-continuous (i.e., $s \mapsto f(s) - Ls \colon \mathbb{R} \to \mathbb{R}$ is monotone decreasing, for some constant $L \in \mathbb{R}_+$). In particular, our hypotheses allow for the singular derivatives

$$f'(0) = \lim_{s \to 0} \frac{f(s)}{s} = -\infty \quad \text{and} \quad f'(1) = \lim_{s \to 1} \frac{f(s)}{s-1} = -\infty \,.$$

The fact that reaction function f is not smooth allows for the introduction of travelling waves with a new profile. We study existence and uniqueness of this new profile, as well as a long-time asymptotic behavior of the solutions of the Cauchy problem to a travelling wave. Presented results are based on joint research with P. Takáč from the University of Rostock, Germany. (Received September 05, 2016)