1106-35-2933 **Tingting Huan*** (tingting@math.ubc.ca), Room 121 Mathematics Building, 1984 Mathematics Road, Vancouver, BC v6T 1Z2, Canada, and **Changfeng Gui**. *Traveling fronts to reaction diffusion equations with fractional Laplacian.*

We consider the traveling fronts of the reaction diffusion equation:

$$u_t + (-\Delta)^s u = f(u), \quad \text{in } \mathbb{R} \times \mathbb{R},$$

for $f \in C^1(\mathbb{R})$. We show the nonexistence of traveling fronts in the combustion model with fractional Laplacian $(-\Delta)^s$ when $s \in (0, 1/2]$. Our method can be used to give a direct and simple proof of the nonexistence of traveling fronts for the usual Fisher-KPP nonlinearity. Also we prove the existence and nonexistence of traveling waves solutions for different ranges of the fractional power s for the generalized Fisher-KPP type model. When considering the Allen-Cahn type nonlinearity, we show the approach of the solution to the traveling front for a large range of initial value problems. (Received September 17, 2014)