

Similar with Zhan's paper, we consider the following regularized problem

$$\begin{aligned}
& u_{\epsilon t} - \operatorname{div} \left((a(x) + \epsilon) \left((|\nabla u_{\epsilon}^2 + \epsilon)^{\frac{p-2}{2}} \nabla u_{\epsilon} \right) \right) + b(x) (|\nabla u_{\epsilon}|)^2 = 0, (x, t) \in Q_T, \\
& u_{\epsilon}(x, t) = 0, (x, t) \in \partial\Omega \times (0, T), \\
& (x, 0) = u_{\epsilon 0}(x), x \in \Omega,
\end{aligned} \tag{1}$$