Abstract

The aim of this talk is to introduce some recent research progress of the following elliptic equation with Stein-Weiss type convolution part

\begin{equation}\nonumber

-\Delta u=\left(\int_{\R^n}\frac{|u(y)|^{p}}{|x|^{\al}|x-y|^{\mu}|y|^{\beta}}dy\right)|u|^{q-1}u,\sp \mbox{in} \sp \R^N,

\end{equation}

where $N\geq3$, $0<\mu<N$, $\al\geq0$, $\beta\geq0$, $0<\al+\beta+\mu\leq N $ and $p,q>1$. Firstly, we are interested in the qualitative properties, such as the symmetry, regularity and asymptotical behavior of the positive solutions. Secondly, we aim to classify the non-positive solutions by proving some Liouville type theorems for the finite Morse index solutions and stable solutions of the nonlocal elliptic equations with double weights.