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Liouville-type theorems for polyharmonic equations in $\mathbb{R}^N$ and in $\mathbb{R}^N_+$. (English)

Zbl 1153.35028
Proc. R. Soc. Edinb., Sect. A, Math. 138, No. 2, 339-359 (2008).

The authors obtain some new Liouville type theorems for polyharmonic problems in $\mathbb{R}^N$ and $\mathbb{R}^N_+$. The authors use the phase plane method combined with certain integral inequalities. Such approach allows for considering problems in $\mathbb{R}^N$ and $\mathbb{R}^N_+$ with the same method. Another advantage of the method applied in this paper is that there is no need of different maximum principles in both cases in order to start the method. The Hardy inequality is also used in the proofs.

The Liouville type theorems for polyharmonic problems play an important role in the non-variational polyharmonic equations.

Reviewer: Marek Galewski (Łódź)

MSC:

35J60 Nonlinear elliptic equations
35J30 Higher-order elliptic equations

Keywords:

moving plane method; Hardy ineqaulity; polyharmonic equation; maximum principle

Full Text: DOI