Busca, Jérôme; **Manásevich, Raul**

A Liouville-type theorem for Lane-Emden systems. (English) Zbl 1033.35032

Indiana Univ. Math. J. 51, No. 1, 37-51 (2002).

The authors provide a partial positive answer to a well-known conjecture about the nonexistence of positive solutions to Lane-Emden systems below the critical Sobolev hyperbola. The proof is based on a monotonicity argument for suitable transformed functions. It relies on a special form of the Alexandrov-Serrin moving planes method, as well as some refined forms of the maximum principle for elliptic systems that they develop here.

Their result extends the nonexistence result of *D. G. de Figueiredo* and *P. L. Felmer* [Ann. Sc. Norm. Sup. Pisa, Cl. Sci. (4) 21, 387–597 (1994; Zbl 0820.35042)].

Reviewer: Zeng Yuesheng (Huaihua)

MSC:

35J60	Nonlinear elliptic equations
35B05	Oscillation, zeros of solutions, mean value theorems, etc. in context of PDEs
35J55	Systems of elliptic equations, boundary value problems (MSC2000)
35B50	Maximum principles in context of PDEs

Keywords:

nonexistence of positive solutions; critical Sobolev hyperbola; moving planes method; maximum principle