

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

Cited in **47** Documents

Keywords:

[nonexistence of positive solutions](#); [critical Sobolev hyperbola](#); [moving planes method](#); [maximum principle](#)