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Research Interests

- Nonlinear Analysis
- Elliptic Partial Differential Equations

Brief Summary of Research

Lakshmi's primary area of research is nonlinear elliptic partial differential equations. She studies various nonlinear boundary value problems which arise naturally in applications in combustion theory, population dynamics etc. Existence, uniqueness, and multiplicity of solutions to such problems are studied using techniques from nonlinear analysis. She has 10 research publications in refereed international journals. Her current research group consists of one Ph.D. student and one postdoctoral fellow.

Projects

- INSPRE Faculty award, Department of Science and Technology, June 2015-June 2020

Recent Publications (Full list of publications: <https://iitpkd.ac.in/publications/114>)

- Mallick, Mohan; Sankar, Lakshmi, Shivaji, Ratnasingham; Sundar, Subbiah; Infinite semipositone problems with a falling zero and nonlinear boundary conditions. *Electron. J. Differential Equations* 2018, Paper No. 193, 13 pp.
- Chhetri, Maya; Shivaji, R.; Son, Byungjae; Sankar, Lakshmi, An existence result for superlinear semipositone p -Laplacian systems on the exterior of a ball. *Differential Integral Equations* 31(2018), no. 7-8, 643–656.
- Anoop, T. V.; Drábek, P.; Sankar, Lakshmi; Sasi, Sarath, Antimaximum principle in exterior domains. *Nonlinear Anal.* 30 (2016), 241–254.
- Abebe, Abraham; Chhetri, Maya; Sankar, Lakshmi; Shivaji, R. Positive solutions for a class of superlinear semipositone systems on exterior domains. *Bound. Value Probl.* 2014, 2014:198, 9 pp.
- Drábek, Pavel; Sankar, Lakshmi, Singular quasilinear elliptic problems on unbounded domains, *Nonlinear Anal.* 109 (2014), 148–155.