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## 周焕松

### 简历：

男，中国科学院武汉物理与数学研究所研究员、博士生导师。  
1986年华中科技大学应用数学系毕业，  
1992年获中科院系统科学研究所理学硕士学位。  
1997年于瑞士 Ecole Polytechnique Fédérale de Lausanne 获得理学博士学位。

### 主要研究方向：

非线性椭圆型偏微分方程。

### 主要工作及成果：

在非线性椭圆型方程解及多解的存在性及解的性质等方面取得了系列研究结果。在国内外重要的学术刊物，如 Proc. London Math Soc.、Ann Inst. Henri Poincare Anal. Nonlin.、SIAM J. on Math Anal.；Comm. PDE、J. Differential Equations、Calc Var PDE、Manuscript Math.、Acta Math Sinica等上发表论文30多篇，论文被他人独立引用百余次。作为主要成员先后获得了中科院自然科学二等奖、教育部科技进步奖三等奖、湖北省自然科学奖二等奖。

### 目前正在进行的研究项目：

目前正在进行的研究项目有：国家自然科学基金项目。主要研究非线性项在某些特殊增长条件对椭圆型方程解的存在性的影响以及解的分歧性质等。

本年度招生专业：应用数学 专业方向：偏微分方程

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### RESUME

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Here are some of my published papers

1. Axi-symmetric TE-modes in a self-focusing dielectric, SIAM Journal Math Anal., 2005. (with C.A. Stuart)
2. Positive Solution for  $-pu = f(x, u)$  with  $f(x, u)$  Growing as  $u^{p-1}$  at Infinity, Applied Mathematics Letters 17 (2004) 881–887. (with Yisheng Huang)
3. A Dirichlet problem with asymptotically linear and changing sign nonlinearity, Revista Matematica Complutense, 16(2003), page: 465–481. (with M. Lucia, P. Magrone)
4. A constrained minimizing problem and its application to guided TM-modes, Calculus variations and PDE., 16 (2003) , 335–373. (with C. A. Stuart)
5. Dirichlet problem of  $p$ -Laplacian with nonlinear term  $f(x, u) \sim u^{p-1}$  at infinity, Morse Theory, Minimax Theory and their Applications to Nonlinear PDE, Editors : H.Brezis, S. Li , J. Liu & P.H. Rabinowitz, International Press 2003, 77–89. (with G.B. Li)
6. Solutions to semilinear elliptic problems with combined nonlinearities, J.D.E. , 185(2002), 200–224. (with S.J. Li and S.P. Wu)
7. Multiple solutions to  $p$ -Laplacian problem with asymptotic nonlinearity as  $u^{p-1}$  at infinity, Journal of The London Math. Soc., (2002)65, 123–138. (with G.B. Li)
8. An application of a Mountain Pass Theorem, Acta Math. Sinica, 18(2002), 27–36.
9. A Neumann problem in exterior domain, Manuscripta Math. 106 (2001) 1, 63–74. (with D.M. Cao, M. Lucia)
10. Existence of guided cylindrical TM-modes in a homogeneous self-focusing dielectric, Annales de l'Institut Henri Poincare Analyse Non Lineaire, 18(2001), 69–96. (with C.A. Stuart)
11. Existence for asymptotically linear Dirichlet problem, Nonli. Anal. TMA, 44(2001), 909–918.
12. The existence of a positive solution to asymptotically linear scalar field equations, Proc. Royal Soc. Edinburgh, Ser. A., 130A(2000), 81–105. (with G.B Li)
13. Solutions for a quasilinear elliptic equation with critical Sobolev exponent and perturbations on RN, Differential and Integral Equations, 13 (2000), 595–612.
14. Applying the Mountain Pass Theorem to Asymptotically Linear Elliptic Equations on RN, Comm. in P.D.E. , 24(1999), 1377–1758. (with C.A. Stuart)
15. Positive solution to  $p$ -Laplacian type scalar field equation in RN with nonlinearity asymptotic to  $u^{p-1}$  at infinity, Proc. Second International Conference on Nonli. Anal., 1999, Nankai, Eds K.C.Chang & Y.M. Long. (with G.B. Li and L.N. Wu)
16. Positive solution for a semilinear elliptic equation which is almost linear at infinity, J. Applied Math. Physics (ZAMP), 49(1998), 896–906.
17. Multiple positive solutions of nonhomogeneous semilinear elliptic equation in RN, Proc. Royal Soc. Edinburgh, Section A, 126A(1996), 443–463. (with D.M. Cao)

18. On the existence and LP(RN) bifurcation for semilinear elliptic equation, J. Math. Anal. Applica., 154(1991), 116–133. (with Y.B. Deng & X.P. Zhu)
19. Existence of multiple positive solutions of inhomogeneous semilinear elliptic problems in unbounded domains, Proc. Royal Soc. Edinburgh, Sec. A, 115A(1990), 301–318. (with X.P. Zhu)
20. Bifurcation from the essential spectrum of superlinear elliptic equations, Applicable Analysis, 28(1988), 51–66. (with Zhu Xi-Ping)

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