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Concentration and dynamic system of solutions for semilinear elliptic equations. (English)

Zbl 1109.35317

Electron. J. Differ. Equ. 2003, Paper No. 81, 14 p. (2003).

The author deals with the semilinear elliptic equation

$$\begin{cases} -\Delta_x u + u = u|u|^{p-2} & \text{in } \Omega, \\ u \in H_0^1(\Omega), \end{cases} \quad (1)$$

where Ω is a domain in \mathbb{R}^N , $N \geq 2$, $2^* = \frac{2N}{N-2}$ for $N \geq 3$ and $2^* = \infty$ for $N = 2$, $2 < p < 2^*$. Using the Palais-Smale theory the author presents the concentration and dynamic system of solutions. Moreover, the author proves that the equation (1) in axially symmetric bounded domain has three positive solution.

Reviewer: [Messoud A. Efendiev \(Berlin\)](#)

MSC:

- 35J20 Variational methods for second-order elliptic equations
- 35J25 Boundary value problems for second-order elliptic equations
- 35J60 Nonlinear elliptic equations

Keywords:

Palais-Smale concentration; dynamic system; multiple solutions

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