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Existence of solutions of the Neumann problem for a class of equations involving the p -Laplacian via a variational principle of Ricceri. (English) [Zbl 1091.35025](#)

Arch. Math. 79, No. 4, 274-287 (2002).

Summary: In this paper we deal with the existence of weak solutions for the following Neumann problem

$$\begin{cases} -\operatorname{div}(|\nabla u|^{p-2}\nabla u) + \lambda(x)|u|^{p-2}u = \alpha(x)f(u) + \beta(x)g(u) & \text{in } \Omega \\ \frac{\partial u}{\partial \nu} = 0 & \text{on } \partial\Omega \end{cases}$$

where ν is the outward unit normal to the boundary $\partial\Omega$ of the bounded open set $\Omega \subset \mathbb{R}^N$. The existence of solutions, for the above problem, is proved by applying a critical point theorem recently obtained by B. Ricceri as a consequence of a more general variational principle.

MSC:

[35J60](#) Nonlinear elliptic equations

[35D05](#) Existence of generalized solutions of PDE (MSC2000)

[35J20](#) Variational methods for second-order elliptic equations

[35J25](#) Boundary value problems for second-order elliptic equations

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