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ON SEMILINEAR ELLIPTIC EIGENVALUE PROBLEM WITH EIGENPARAMETER IN THE BOUNDARY CONDITIONS

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Abstract. The object of this paper is to establish the expansion theorem for a semilinear elliptic eigenvalue problem of a simply connected bounded domain in $R^n, (n \geq 2)$, where the eigenvalue parameter λ is contained in the semilinear elliptic partial differential equation and in the boundary conditions. We associated with this problem a semilinear self-adjoint operator S in a suitably defined Hilbert space H and then we develop an associated eigenfunction expansion theorem.

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