EXISTENCE OF POSITIVE SOLUTIONS FOR QUASILINEAR ELLIPTIC EQUATION ON RIEMANNIAN MANIFOLDS

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Abstract. Let \((\mathcal{M}, g)\) be a smooth compact Riemannian manifold of dimension \(n \geq 3\). We study the existence of positive weak solutions for the following quasilinear elliptic equation

\[-(\Delta_p)_{g} u + u^{p-1} = f(x, u, \nabla_g u) \quad \text{in} \quad \mathcal{M},\]

where \((\Delta_p)_{g} u = \text{div}_g (|\nabla u|_g^p \nabla u)\) is the \(p\)-Laplacian operator on Riemannian manifold \((\mathcal{M}, g)\) with \(1 < p < n\).


Keywords and phrases: Riemannian manifold, quasilinear elliptic equation, a priori bound, existence of solution.

REFERENCES
