Existence and multiplicity of periodic solutions to one-dimensional p-Laplacian

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Abstract. The paper [1] deals with the existence and multiplicity of periodic solutions to one-dimensional p-Laplacian equation. Variational method using minimization and extended Clark's theorem are applied. An impulsive problem was also considered. Let $p > 1$ be a real number and $\varphi_p(t) = |t|^{p-2}t, t \neq 0$ and $\varphi_p(t) = 0, t = 0$. We consider the existence of T-periodic solutions for the following one-dimensional p-Laplacian equation $\varphi_p(u'(x)))' - a(x)\varphi_q(u(x)) + b(x)\varphi_r(u(x)) = 0$ For $p = r = 2$ and $q = 4$ the equation is known as stationary Fisher-Kolmogorov equation and appears in bio mathematical model.

References

[1] P. Drabek, M. Langerova, S. Tersian, Existence and multiplicity of periodic solutions to one-dimensional p-Laplacian, Electronic Journal of Qualitative Theory of Differential Equations 2016, No. 30, 19; doi: 10.14232/ejqtde.2016.1.30.