1154-35-226 **Michail E Filippakis*** (mfilip@unipi.gr), Department of Digital Systems, University of Piraeus, 126 Grigoriou Labraki Str, 18532, Piraeus-Gr, 18534 Piraeus, Greece. *Multiple and nodal solutions for nonlinear equations with a nonhomogeneous differential operator and concave-convex term-Nodal solutions for nonlinear problems.*

In this paper we consider a nonlinear parametric Dirichlet problem driven by a nonhomogeneous differential operator (special cases are the p-Laplacian and the (p,q)-differential operator) and with a reaction which has the combined effects of concave ($(p-1)$-sublinear) and convex ($(p-1)$-superlinear) terms. We do not employ the usual in such cases AR-condition. Using variational methods based on critical point theory, together with truncation and comparison techniques and Morse theory (critical groups), we show that for all small $\lambda > 0$ (λ is a parameter), the problem has at least five nontrivial smooth solutions. We also prove two auxiliary results of independent interest. The first is a strong comparison principle and the second relates Sobolev and H$\{\ddot{o}\}$lder local minimizers for C^1 functionals. Then we consider a nonlinear nonhomogeneous Robin problem and with Morse Theory and variational methods we prove the existence of nontrivial smooth solutions.

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