

Lane-Emden problems with variable double phase and multiple regime

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We study a class of Lane-Emden problems with variable exponents and Dirichlet boundary condition. The associated energy is a double-phase functional with unbalanced growth. A feature of this talk is that the structure of this problem allows the presence of a multiple regime, namely either subcritical-critical and even subcritical-critical-supercritical. The proofs combine variational and topological methods and the arguments open new paths in the understanding of nonlinear patterns with variable structure.