22.02.2021

Monday's Nonstandard Seminar 21

14:00

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Title: **Nonstandard phenomena in the study of double-phase problems**

Abstract: We report on some recent results concerning noticeable phenomena that arise in the study of double-phase equations with Dirichlet boundary condition.

We first consider the isotropic setting described by the (p, q)-differential operator and we point out the following results:

(i) a discontinuity property of the spectrum;

(ii) the existence of a continuous spectrum that concentrates at infinity.

Next, we are concerned with the anisotropic framework corresponding to a double-phase energy with several variable exponents. We study a class of nonstandard problems with triple regime "subcritical-critical-supercritical". Exotic phenomena of this type become possible due to the presence of *variable* exponents. We establish several existence properties corresponding to the radial or nonradial cases, respectively to a variable potential which is singular on the boundary.