جامعة عبد المالك السعدي
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Université Abdelmalek Essaadi

Pole for Doctoral Studies
Center for Doctoral Studies Sciences, Technologies, and Medical Sciences

ANNOUNCEMENT OF DOCTORAL THESIS DEFENSE

M. EL JANATHI Aymane

Will present their research work with the aim of earning a Doctorate

Doctoral program: Mathematical Sciences, Physics and New Technologies (SMPNT
Discipline: Mathematics
Specialty: Applied Mathematics

On 20/12/2025 at 11H00 at the Thesis Defense Hall, Faculty of Sciences of Tetouan, UAE
Under the Theme

Existence and uniqueness of solution for some elliptic and parabolic equations in generalized Sobolev spaces

Front of the jury composed of :

First Name & Last Name	Establishment	Designation
Pr. ZERTITI Abderrahim	FS of Tetouan, UAE	President
Pr. BOUZELMATE Arij	FS of Tetouan, UAE	Reviewer
Pr. MEKKOUR Mounir	FSDM of Fez, USMBA	Reviewer
Pr. TSOULI Azzeddine	ENSAM of Casablanca, UH2C	Reviewer
Pr. BENBOUBKER Mohamed Badr	ÉST of Fez, USMBA	Examiner
Pr. EL ALAMI Abdessamad	EST of Meknes, UMI	Examiner
Pr. EL HAJI Badr	FS of Tetouan, UAE	Co- Supervisor
Pr. HJIAJ Hassane	FS of Tetouan, UAE	Supervisor

Host Research Structure: Analyse fonctionnel non linéaire appliqué au modèles mathématiques (AFNLA)

Abstract

In this thesis, we study a class of quasilinear elliptic and parabolic problems with Dirichlet-type boundary conditions, in the framework of anisotropic Sobolev spaces and Musielak-Orlicz-Sobolev spaces.

This work is composed of five chapters. In the first chapter, we present some definitions and results required for the work. In the second chapter, we focus on the study of singular problems, where we prove the existence of renormalized solutions for a singular elliptic equation with degenerate coercivity in anisotropic Sobolev spaces. Chapter 3 is devoted to establishing the existence of entropic solutions for a strongly nonlinear elliptic equation with a singular term in anisotropic Sobolev spaces. Chapter 4 deals with the existence of renormalized solutions for a class of parabolic problems in anisotropic Sobolev spaces. In Chapter 5, we study the existence and uniqueness of the renormalized solution for some nonlinear elliptic problems in the framework of Musielak-Orlicz-Sobolev spaces.

Keywords : Anisotropic Sobolev spaces, Musielak-Orlicz-Sobolev spaces, elliptic equation, parabolic equation, degenerate coercivity, singular elliptic problem, renormalized solution, entropic solution.