



Pole for Doctoral Studies
Center for Doctoral Studies Sciences and Techniques and Medical Sciences

ANNOUNCEMENT OF DOCTORAL THESIS DEFENSE



M. BOUCHIKHI Abdelmonaim

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

**Doctoral program: Mathematical Sciences, Physics and
Technologies (SMPNT)**

Discipline: Mathematics

Specialty: Algebra-Number Theory

**On 23/07/2026 at 09H00 at the Lecture Hall “2”, Higher School of
Technology of Tetouan, UAE**

Under the Theme

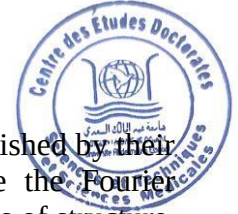
On Fourier Coefficients of Some Families of Modular Forms

Front of the jury composed of :

First Name & Last Name	Establishment	Designation
Pr. BOUZELMATE Arij	FS of Tetouan, UAE	President
Pr. EL MERZGUIOUI Mhamed	FST of Tangier, UAE	Reviewer
Pr. KACHAD Mohammed	FST of Errachidia, UMI	Reviewer
Pr. ZOUGARI Tarek	ENSA of Tangier , UAE	Reviewer
Pr. LOULY Adel	ENSA of Tetouan, UAE	Examiner
Pr. DRISSI Ahmed	ENSA of Tangier, UAE	Examiner
Pr. MEZROUI Soufiane	EST of Tetouan, UAE	Supervisor

Host Research Structure: Engineering Laboratory for Intelligent Technologies and Transformation (ELITT)

Abstract



Modular forms are a central object of intensive study in number theory, distinguished by their profound and fascinating arithmetic properties. This thesis aims to explore the Fourier coefficient properties of specific families of modular forms across multiple levels of structure. The investigation will proceed along three principal axes: the geometric, concerning the algebro-geometric and topological interpretations of these coefficients; the arithmetic, focusing on their number-theoretic significance, distribution, and congruence properties; and the level of automorphic forms, situating the results within the broader framework of automorphic representations and their associated L -functions. By adopting this multi-faceted approach, the thesis seeks to provide a unified and deeper understanding of the arithmetic information encoded in the Fourier expansions of these modular forms.

Keywords: Fourier coefficient of modular forms; Hecke operators; cusp forms; Eta quotients; L -functions; p -adic modular forms, Hida and Coleman families ; Representation numbers.