Labex INTERACTFS (https://labex-interactifs.pprime.fr/)

2022 Projet Proposition d'un module de cours à destination des doctorants

I. Informations générales :

Employeur de l'intervenant ***Employer***	☐ **UP** ☐ **ENSMA** ☒ **CNRS**
TITRE du cours en français ***French title***	**MESURE DE LA TOPOGRAPHIE DES SURFACES**
TITRE du cours en anglais ***English title***	**MEASUREMENT OF SURFACES TOPOGRAPHY**
Adéquation avec les thèmes du Labex ***Adequacy with Labex Research project topics***	☒ 1 - COUPLAGE ENTRE LES MATÉRIAUX ET DES CONDITIONS SPÉCIFIQUES D'ENVIRONNEMENT ☒ 2 - FONCTIONNALISATION DES SURFACES ☒ 3- FLUIDES ET PHÉNOMÈNES ÉLECTRIQUES AUX INTERFACES
Enseignant ***Teacher***	**Nom :** Brunetière **Prénom :** Noël **Tel :** 05 49 49 65 31 **Email : noel.brunetiere@univ-poitiers.fr**
Modalités ***Terms and conditions***	**Date limite de candidature :** 16 avril 2022 **Envoi du formulaire à l'adresse :** labex.interactifs@univ-poitiers.fr **Prendre contact avec les responsables de thèmes:** Cf tableau ci dessous*

Jours	**Horaire**	**Salle**
6/5/2025	9-12h	??
+ 3h of applications		
Goup of 4/5		
6/5/2025	14h-17h	H1 1W17b
7/5/2025	9h-12h	H1 1W17b
7/5/2025	14h-17h	H1 1W17b

II. Brève description du cours proposé, objectifs et plan

MEASUREMENT OF SURFACES TOPOGRAPHY

The surface roughness and topography have a significant impact on many physical phenomena occuring at the interface such as surface wetting, tribolgy, lubrication and friction, fluid flow, heat transfer, electric resistance of contact. Moreover in the case of surface fonctionalisation such as texturing or coating, it is important to be able to characterize the surface topography.

The objective of this course is to present the different methods available to measure surface topography and compare their performance, advantages and drawbacks . The second objective is a practical course on the use of a white light interferometer. At the and of the course, the students will be able to use the instrument in autonomy.

The course is split in 2 parts :

I - Theoretical part (3h) (full course 2022, available on line: https://hal.science/hal-03710660v1)

1) Description of the surface roughness
2) Roughness parameters
3) Optical instruments for surface topography
4) Other instruments
5) Comparison of instruments

II - Practical part (3h)

1) Presentation of the White Light Interferometer
2) Method for fringes search
3) Measurement of different samples
4) Images and data analysis
5) Measurement with surface stitching
6) Calibration verification