

Name of the hosting institution in France	Université Polytechnique Hauts-de-France
Name of the host laboratory / research team	LAMIH UMR – CNRS 8201 Laboratoire d'Automatique de Mécanique et d'Informatique industrielles et Humaines
Address	LAMIH UMR – CNRS 8201, Université Polytechnique Hauts-de-France, Campus Mont Houy, 59313 VALENCIENNES Cedex 9
Name of the supervisor	Pr. Eric MARKIEWICZ
Function	Vice-President for Research
Email	Eric.Markiewicz@uphf.fr
Phone number	+33 3 27 51 13 02

Internship offer

Topic of the internship (title)	Project in Mechanical Engineering			
Proposed dates of the internship	Start	02/09/2024	End	20/12/2024

Scientific and academic objectives of the internship:

Conduct quasi-static and dynamic experiments under uniaxial and mixed shear/compression loading directions to analyze the mechanical properties (stability, collapse modes, specific energy absorption,...) of various Pa12 architected structures obtained by additive manufacturing. Quasi-static machine and a Split Hopkinson Pressure Bar (SHPB) apparatus will be used with additional advanced measurement techniques such as tracking and Digital Image Correlation (DIC). In the specific case of mixed shear/compression conditions, we aim to develop a special connecting system to detect and measure radial forces. In a second step, FEM modeling approach will be implemented to define digital twins of architected structures with the better mechanical properties, aiding in lightweight protective structural design.

Industrial partner

Does the project involve a French industry partner?	No
Name	/
Role of the industrial partner in the internship project	/
Main contact	/
Email	/
Main contact industrial partner's branch in Australia	/
Email	/

Australian partner

Is the internship project proposed in the framework of an existing collaboration with an Australian partner university?	Yes
Name of the Australian partner institution	Ongoing discussions with Swinburne University
Lab/department/team involved in the collaboration	Department of Mechanical Engineering and Product Design Engineering
Main contact in the Australian partner institution	Pr. Guoxing Lu
Function	Associate Dean Research
Email	glu@swin.edu.au
Outside of this ongoing collaboration, will students from other Australian universities be considered by the hosting institution in France?	Yes

Expected profile of applicant

Level of study	Master or PhD
Discipline	Mechanical Engineering
Prerequisite knowledge, qualities and skills	Bachelor degree in Mechanical Engineering, autonomy, rigorous scientific approach
Language of Internship	English
Other specific eligibility criteria	/

Je soussigné(e) Eric MARKIEWICZ, Vice-Président Recherche, atteste par la présente que l'Université Polytechnique Hauts-de-France s'engage, en cas de sélection d'un candidat pour le stage Project in Mechanical Engineering proposé dans le cadre de l'initiative *Stages en France* du programme d'aide à la mobilité Nicolas Baudin :

- à assurer la mise en place de la convention de stage, et le suivi administratif (circuit de signature, validation par les autorités préfectorales) et ;
- à veiller que le candidat recevra une gratification de stage (obligatoire selon le montant minium en vigueur au moment de la tenue du stage en France). La source du financement de la gratification est issue de la politique Recherche de l'Université Polytechnique Hauts-de-France et est opérée par le Pôle de Relations Internationales dans le cadre du programme de mobilité interne BRIDGE (Boosting Relations through Internship Development, Global Experience, and Education).



Fait à Valenciennes

Le jeudi 29 février 2024

Signature, cachet

A handwritten signature in blue ink, appearing to read 'Eric Markiewicz', written over a horizontal line.