

## Proposition de stage de MASTER 2019 - 2020

Nom de l'Equipe d'accueil de l'I.C.B. : SIOM-INTERFACES

<b>Title</b>	<b>Structural characterization of new Ti-based alloys by transmission electron microscopy</b>
<b>Research context</b>	<p>This internship is realized in collaboration with the M<sup>4</sup>OxE team of the PMDM department (Metallurgical Processes, Durability, Materials) within the framework of projects gathering academic and industrial partners (AIRBUS, SAFRAN, TIMET, ONERA, NEOTISS ...). These projects focus on the development of new titanium alloys with good mechanical properties at high temperature for aerospace applications. This internship focuses on the structural characterization of titanium alloys after oxidation at high temperature or hydriding. Transmission electron microscopy is a very valuable technique for obtaining structural, morphological and chemical information at the nanoscale.</p> <p>The student will participate to the process of the samples and will carry out transmission electron microscopy and electron diffraction experiments on the equipments of the ARCEN center. Softwares will be used to study the structure and chemistry of the samples. The student will be trained in transmission electron microscopy techniques and data processing.</p>
<b>Objectives</b>	<p>Use conventional and high-resolution TEM techniques to analyze the structure of Ti alloys at nanometer scale</p> <p>Obtain relationships between elaboration, structure and materials properties</p>
<b>Main skills</b>	<p><b>Structural and chemical characterization by XRD, SEM, TEM, Raman and XPS</b></p> <p><b>Characterization by transmission electron microscopy and associated techniques (EDX, EELS ...)</b></p>
<b>Means</b>	<ul style="list-style-type: none"><li>- Elaboration process</li><li>- XRD, SEM, Raman and XPS</li><li>- Transmission electron microscopes</li></ul>
<b>Supervisor</b>	<p>Valérie POTIN (RdC aile C, CR16, poste 5923)</p> <p><a href="mailto:vpotin@u-bourgogne.fr">vpotin@u-bourgogne.fr</a></p>
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