

# Thibaut Dessolier

145 Stonhouse Street – London – SW4 6BQ – UK

✉ [thibaut.dessolier@gmail.com](mailto:thibaut.dessolier@gmail.com)

☎ +44 7564112526

## Research Scientist in Materials and Mechanical Sciences

### Summary:

*Through my experience, I have acquired extensive knowledge on materials and mechanical behaviour characterisation of high technical materials used in the energy and transport industries. To do so, I have used several high precision microscopy techniques, set up mechanical tests at several temperatures, implemented multidisciplinary experiments and developed several codes in order to analyse data. I have also developed the ability to work in team and independently with rigour and precision as well as to communicate with people, write and present clear results.*

### Experience

○ **Research associate** 2019 – Today  
*Department of Materials – Imperial College London – London, UK*

Project in collaboration with Shell based on the investigation of the degradation mechanisms of centrifugally ex-service pipes of nickel alloy used for hydrogen gas production.

- Microstructural characterisation of the alloy with high precision microscopy equipment (from the millimetric to the atomic scale)
- Mechanical behaviour characterisation with high temperature tests (tensile and creep) combined with Digital Image Correlation (DIC) and High Resolution Electron Backscatter Diffraction (HR-EBSD) techniques to capture strain heterogeneities inside the microstructure and follow cracks propagations
- Design and development of experimental tools and code for the materials and mechanical characterisations and the data analyses
- Scientific and technical interactions between several actors (external and internal)

○ **Ph.D. in Materials and Mechanical Sciences** 2015 – 2018  
*SIMaP laboratory – Grenoble, France*

Thesis project where the main objective was to highlight the effect of the temperature on the plastic heterogeneities localisation and the active deformation mechanisms inside magnesium alloy during superplasticity solicitation

- Development of a well controlled in situ high temperature micromechanical test (which combined mechanical, thermal, vacuum aspects) within a Scanning Electron Microscope (SEM) combined with DIC technique to capture the plastic heterogeneities
- Development with a collaboration (LMS laboratory, Paris) of a pattern for DIC technique based on Electron Beam Lithography
- Implementation of a Python code in order to combine mechanical and microscope results for the data analyses
- These tools are now being used for other materials and projects

○ **Final internship (Masters degree)** 2015  
*CEA – Grenoble, France*

Optimisation of sintering process of nanometric silver paste at low pressure for the assembly of electronic module

- Microstructural characterisation using SEM and optical images
- Characterisation of the interface behaviour with mechanical tests performed at room temperature and hardness measurements

### Skills :

#### ○ *Technical*

- Materials Science and Metallurgy
- Microstructural characterisation with high precision microscopy equipment (SEM, EBSD, EDS, FIB and TEM)
- Mechanical Sciences and the implementation of mechanical tests in several conditions
- Strain map assessment with Digital Image Correlation and High Resolution Electron Backscatter Diffraction techniques
- Design and development of tools (ex or in situ) for materials characterisation
- Implementation of code for the data analyses
- Programming (strong ability): Python / Matlab / Tex
- Strong capacity for analysis and data interpretation

#### ○ *Linguistic*



French: Mother tongue



English: Fluent

#### ○ *Management*

- Highly self-motivated, meticulous and organised, ability to work in a team and independently
- Excellent verbal, written and presenting skills
- High ability to manage R&D projects as well as supervise people
- Diplomatic skills
- Strong communication skills and ability to adapt to different audiences

- **Engineering Assistant internship (school project)** 2013 - 2014  
*Cetim-Cermat – Mulhouse, France*

Optimisation of casting process of thermoplastic composites from recycled materials

- Microstructural (using SEM and optical imaging) and mechanical behaviour characterisation (tensile and fatigue tests)

- **Software**

- CAD: Solidworks / Catia
- Simulation: Abaqus
- Image processing: imageJ / Paraview / Inkscape / Gimp / Blender
- DIC: Davis / CorrelManuv
- Report, presentation: Microsoft Office (Word, Excel, Powerpoint) / LaTeX

## Education

- **PhD in Materials Science and Mechanical Engineering** 2015 – 2018  
*Grenoble Alpes University – Grenoble, France*
- **Masters degree in mechanical engineering and materials science** 2012 – 2015  
*University of technology of Belfort Montbéliard (UTBM) – Belfort, France*

## Supervision and training

- Supervisory staff (at Imperial College London) of a :
  - PhD student who is working in collaboration with Shell on steel alloy used in pipeline for gas production. The objective is to explore the mechanisms of crack propagation in this alloy by performing crack propagation tests in a charging environment and by characterising the microstructure.
  - Masters student who is working on code development to improve the data from materials characterisation with EBSD and EDS.
- Training of PhD and research associate on microscopy and mechanical equipment and data analyses

## Additional relevant experience

- Organisation and management of a one-day conference between researchers, industrials and PhD students
- Organisation of an exhibition with industrial companies and students
- Treasurer and member of the organisation of a film festival (Film Festival in One Day)

## References

- Up to 3 references available upon request