

# Olivier Zanellato



## Conservatoire National des Arts et Métiers (CNAM)

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**Lecturer in Materials and Materials Behaviour ('Maitre de Conférences')**  
**PhD in Materials Engineering**

## WORK EXPERIENCE

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**2011/Now**     **MAITRE DE CONFERENCES Section 33 (Lecturer)**  
*Conservatoire National des Arts et Métiers*

**Teaching:**

- Materials Behaviour and Structural Integrity (Masters level)
- Materials Selection (Undergraduate level)

**Research:**

- Mechanical behaviour of Metal Matrix Composites Fe-TiB<sub>2</sub>
- Grain Size engineering in steels using Equal Channel Angular Extrusion (ECAE)

**2009/2011**     **POST-DOC**  
*IRSN Cadarache, INSA Lyon and University of Manchester*

**Teaching:**

- Materials Science (Undergraduate level)
- Materials Selection (Undergraduate level)

**Research:**

- Mechanisms of precipitation and dissolution of hydrides in Zircaloy-4

## EDUCATION

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**2005/2009**     **PhD in Materials Engineering**  
*The Open University (OU), UK*

- Title: Study of the micromechanical behaviour of Zirconium alloys
- Supervisors:     Prof. M. E. Fitzpatrick (OU, UK)  
                         Prof. M. Daymond (Queens University, Canada)  
                         Prof. L. Edwards (ANSTO, Australia)
- Project aim: Understand the deformation mechanisms at the crystal level and link with the macroscopic behaviour in Zircaloy-4 and Zr-2.5%Nb (alloys used in the nuclear industry for fuel cladding or pressure vessels).

**2005**     **Master of Science in Materials Engineering**  
*Jointly at Univ. Paris VI, ENS and ENSAM, France*

- Project Title: Determination of residual stresses by laboratory X-ray diffraction in welded and repaired pieces of stainless steels and copper alloys.
- Supervisor: Dr. C. Braham (LIM lab, ENSAM, France)

- 2002/2005**      **Mechanical Engineering School**  
*Ecole Nationale Supérieure des Arts et Métiers (ENSAM), France*  
*Study leave semester at Queen's University of Belfast, UK*
- 1999/2002**      **Preparatory Classes for Engineering Schools**  
*Lycée A.Daudet, Nîmes, France*
- 1999**            **Baccalauréat in Science**  
*Lycée Montauray, Nîmes, France*

## RESEARCH EXPERIENCE

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### Technical skills

- Diffraction for stress and texture measurements and phase analysis (Neutron, Synchrotron, lab X-rays, EBSD)
- Other techniques used: Metallography, Scanning Electron Microscope, Hole Drilling method...

### IT skills

- Programming: fluent in Matlab, some knowledge of Fortran and C
- Academic software: PopLA (Texture analysis), Topas, GSAS, MAUD (diffraction data analysis)
- Other: MS Office, Origin

### Collaborations and Networking

- Present collaborations: IRSN Cadarache (France), INSA Lyon (France), Uni. of Manchester (UK), ESSS Lund (Sweden), ESRF Grenoble (France).
- PhD was part of the KNOO project: consortium of UK universities and international industrial partners from the nuclear industry.
- Got involved in a number of other projects:
  - Structural integrity project on the redistribution of residual stresses during fatigue crack propagation in welded aluminium alloys.
  - Neutron diffraction experiments for the measurement of residual stresses in steel welded pipes

### Conferences / Seminars

- 2011      Seminar at Bragg Institute, ANSTO, Australia  
             TMS annual meeting, San Diego, USA
- 2010      Nuclear Materials Conference, Karlsruhe, Germany  
             SF2M annual meeting, Paris, France
- 2009      Seminar at the ESRF, France
- 2008      International Conference on Residual Stresses (ICRS) VIII, Denver, USA  
             Neutron and Muon User Meeting (NMUM), Nottingham, UK
- 2007      Meca Sens IV, Vienna, Austria

## MISCELLANEOUS

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- Language skills**      French: Mother tongue  
                                  English : fluent  
                                  2005/2009: lived in England  
                                  2005: Test of English for International Communication (scored 975/990)  
                                  Feb./June 2004: lived in Northern Ireland  
                                  German (basics)
- Hobbies**              Ski touring, Playing drums, Inline skating

### Peer reviewed journal papers:

- [JP1] C.D.M. Liljedahl, O. Zanellato, M.E. Fitzpatrick, J. Lin, L. Edwards, *The effect of weld residual stresses and their re-distribution with crack growth during fatigue under constant amplitude loading*, International Journal of Fatigue 32 (2010), pp.735-743
- [JP2] C.D.M. Liljedahl, M.L. Tan, O. Zanellato, S. Ganguly, M.E. Fitzpatrick, L. Edwards, *Evolution of residual stresses with fatigue loading and subsequent crack growth in a welded aluminium alloy middle tension specimen*, Engineering Fracture Mechanics 75 (2008), pp.3881-3894.
- [JP3] C.D.M. Liljedahl, O. Zanellato, L. Edwards, M.E. Fitzpatrick, *Evolution of Residual Stresses with Fatigue Crack Growth in a Variable Polarity Plasma Arc Welded Aluminum Alloy Compact Tension Specimen*, Metallurgical and Materials Transactions A 39 (2008), pp.2370-2377.
- [JP4] O. Zanellato, M. Preuss, J.-Y. Buffiere, F. Ribeiro, A. Steuwer, J. Desquines, J. Andrieux, B. Krebs, *Synchrotron diffraction study of dissolution and precipitation kinetics of hydrides in Zircaloy-4*, accepted for publication in Journal of Nuclear Materials.

### Peer reviewed conference papers :

- [CP1] O. Zanellato, M.E. Fitzpatrick, M.R. Daymond, L. Edwards, M. Turski, *Development of intergranular stresses during in-situ compression tests in Zircaloy-4*, Materials Science Forum 571-572 (2008), pp.149-154.
- [CP2] C.D.M. Liljedahl, J. Brouard, O. Zanellato, J. Lin, M. Tan, S. Gangulo, P. Irving, M. Fitzpatrick, X. Zhang, L. Edwards, *Weld residual stress effects on fatigue crack growth behaviour of aluminium alloy 2024-T351*, International Conference on Damage Tolerance of Aircraft Structures 2007, Delft, Netherlands, September 2007.
- [CP3] S.Y. Zhang, E. Godfrey, W. Kockelmann, A. Paradowska, M.J. Bull, A.M. Korsunsky, B. Abbey, P. Xu, Y. Tomota, C.D.M. Liljedahl, O. Zanellato, M.E. Fitzpatrick, M.R. Daymond, R.M. Toda, R.A. Holt, J. Kelleher, S. Siano, J. Santisteban, *High-tech composites to ancient metals*, Materials Today (2009), 12(7-8), pp. 78-84.

### Other :

- [O1] C.D.M. Liljedahl, O. Zanellato, M. Fitzpatrick, L. Edwards, D. Hughes, *Evolution of weld residual stresses with in-situ fatigue loading and crack growth*, Scientific Highlight, ILL Annual Report (2007).