

LE MASSON Philippe – 61 ans

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Since september 1993 : Full Professor to UBS (Université Bretagne-Sud)

Head of the CNRS laboratory IRDL (Institut de recherche Dupuy de Lôme)

CNU : 62

➤ **Graduates :**

2006 Habilitation to directing researchs (HDR) – Sciences for engineers

1991 Ph.D. University of Nantes - France, Thermal Engineering

1986 DEA Fluid dynamics and heat transfers, Ecole Centrale de Nantes

➤ **Teaching Activities :**

Sciences for engineers department – UBS (Thermal Engineering M.S.) : heat transfers, thermodynamics, modeling, Inverse and Optimization methods, thermophysical characterization, steam network - Boilers

➤ **Research activities :**

Thermophysical modeling of assemblies - Welding of metallic materials, additive manufacturing; inverse methods and thermal measurement methods (small thermocouples, multispectral pyrometer, etc.).

Professor Le Masson's research areas of interest include the scientific problems around the material assembling. He is head of the CNRS laboratory IRDL. He is the head of a research team on materials assemblies (www.IRDL.fr). Three axes are developed: the simulation, the material characterization and the thermal measurements. These axes feed the development of the inverse methods for Melting edge estimation, thermo-dependent thermophysical properties estimations, time-dependent properties estimations.

He is the co-author of 5 book chapters, 42 papers in international peer-reviewed journals and 47 papers in conferences.

https://scholar.google.fr/citations?hl=fr&user=Ydl4dtIAAAAJ&view_op=list_works&sortby=pubdate

➤ **Principal Publications (Past six Years):**

M. Courtois, M. Carin, Ph. Le Masson, S. Gaied, M. Balabane, « Modelisation thermo-hydraulique tridimensionnelle du soudage laser et validation expérimentale », *Materiaux & Techniques* 102, 404 (2014) DOI: 10.1051/mattech/2014033.

M. Courtois, M. Carin, Ph. Le Masson, S. Gaied, M. Balabane, “A complete model of keyhole and melt pool dynamics to analyze instabilities and collapse during laser welding”, *Journal of Laser Applications* 26, 042001 (2014); doi: 10.2351/1.4886835

M. GHARBI, P. PEYRE, C. GORNY, S. MORVILLE, P. LE MASSON, D. CARRON, R. FABBRO - Influence of a pulsed laser regime on surface finish induced by the direct metal

deposition process on a Ti64 alloy - Journal of Materials Processing Technology - Vol. 214, n°2, p.485-495 – 2014

Morgan DAL, Philippe LE MASSON, Muriel CARIN - A model comparison to predict heat transfer during spot GTA welding - International Journal of Thermal Sciences - Vol. 75, p.54-64 – 201

M. Courtois, M. Carin, P. Le Masson, S. Gaied, M. Balabane, “Guidelines in the experimental validation of a 3D heat and fluid flow model of keyhole laser welding” , *J. Phys : D Appl. Phy* 49 (2016) 155503 (13pp)

L. Bidi, P. Le Masson, E. Cicala, C. Primault, “Experimental design method to the weld bead geometry optimization for hybrid laser-MAG welding in a narrow chamfer configuration”, *Optics & Laser Technology*, Vol. 89, March 2017, PP 114-125.

G Tran Van, D Carron, P Le Masson, V Robin, A Andrieu, J Stodolna, « Effect of Boron content on hot ductility and hot cracking susceptibility in 316L Austenitic stainless steel for welding components », *Journal of materials engineering and performance* 27 (10), 5114-5123, 2018, <https://doi.org/10.1007/s11665-018-3640-z>

N. Demazel, H. Laurent, J. Coêr, M. Carin, P. Le Masson, J. Favero, R. Canivenc, H. Salmon-Legagneur, « Investigation of the progressive hot die stamping of a complex boron steel part using numerical simulations and Gleeble tests », *The International Journal of Advanced Manufacturing Technology*, October 2018, Volume 99, [Issue 1–4](#), pp 803–817

L. Dejaeghere, T. Pierre, M. Carin, P. Le Masson, M. Courtois, « Design and development of an induction furnace to characterize molten metals at high temperatures » *High Temperatures – High Pressures* 47 (1), (2018)

Dylan Le Maux, Mickaël Courtois, Thomas Pierre, Bernard Lamien, and Philippe Le Masson, "Density measurement of liquid 22MnB5 by aerodynamic levitation", *Review of Scientific Instruments* 90, 074904 (2019) <https://doi.org/10.1063/1.5089620>

Bernard Lamien, Dylan Le Maux, Mickael Courtois, Thomas Pierre, Muriel Carin, Philippe Le Masson, Helcio Rangel Barreto Orlando, Pascal Paillard, A Bayesian approach for the estimation of the thermal diffusivity of aerodynamically levitated solid metals at high temperatures, *International Journal of Heat and Mass Transfer*, Volume 141, 2019, Pages 265-281, ISSN 0017-9310, <https://doi.org/10.1016/j.ijheatmasstransfer.2019.06.054>.

S. Cadiou, M. Courtois, M. Carin, W. Berckmans, P. Le Masson, Heat transfer, fluid flow and electromagnetic model of droplets generation and melt pool behaviour for wire arc additive manufacturing, *International Journal of Heat and Mass Transfer*, Volume 148, 2020, 119102, ISSN 0017-9310, <https://doi.org/10.1016/j.ijheatmasstransfer.2019.119102>.

N. Demazel, H. Laurent, M. Carin, P. Le Masson, H. Salmon-Legagneur, A direct resistance heating method for shaped blank, *Journal of Manufacturing Processes*, Volume 62, 2021, Pages 772-783, ISSN 1526-6125, <https://doi.org/10.1016/j.jmapro.2020.12.056>.

P. Le Masson, H. R. B. Orlando, Thermophysical characterization of materials at high temperatures by solving inverse problems within the Bayesian framework of statistics. *High Temperatures -- High Pressures* . 2021, Vol. 50 Issue 2, p77-104.