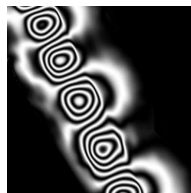


# MASSEBOEUF Aurélien

Scientist, CNRS

Physics and materials – Electron Microscopy

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Born in 1980, 1 child

## Research themes

The main topic of my research field is linked to **Transmission Electron Microscopy (TEM)**. Developpement of **imaging techniques** is realized both by modifying the instruments and with the help of theory and programmation. Main applications of such developpments are *in-situ* image characterization of processes on **carbon** and/or **magnetic** objects at the nanometer scale from the development of a new **Cold Field Emission Gun (CFEG)** based on a **carbon nanotube** to locale observation of **magnetic transformations**.

## Milestones

**2011** : Hired as scientist in CNRS

**2010-2011** : Post-Doctoral stay in CEA & CNRS, *Grenoble* - funded by *Nanosciences Foundation* – supervised by *J. Vogel & P. Bayle*

**2009-2010** : Post-Doctoral stay in CNRS, *Toulouse* - funding by *ANR HDStrain* - supervised by *M. Hÿtch & F. Houdellier*

**2005-2008** : PhD Thesis in CEA & UJF, *Grenoble* - funding by *CEA* - supervised by *A. Marty & P. Bayle*

**2004** : Master's Degree in Université Joseph Fourier, *Grenoble* - *Physic for Instruments*

**2004** : Master's Degree in Ecole Polytechnique, *Montréal* - *scholarship collaboration*

**1998-2003** : Undergraduate scholarship in INSA, *Rennes* - *Materials & Nanotechnology speciality*

## Summary of Present and Past activities

**Magnetism** : Domain wall motion with field and current, Micromagnetism fundamental studies, Magnetic imaging development

**Carbon** : Carbon nanotubes manipulation, Low Tension TEM imaging, Field emission properties

**Electron Microscopy** : Holography, Abberation correction, In-situ, High level maintenance, sample holder design

**Instrumental** : TEM, FIB, Scanning probes, Lithography (e-beam & optic), thin membranes fabrication

**Computing** : Image simulation, Finite element modeling, Python, Web, Linux

**Communications** : 10 articles (+ 4 peer-reviewed proceedings).

**Supervising** : IUT internships in informatic and physics, various parts of PhD supervising

**Teaching** : Various praticals and lectures given in Physics, Mechanics, Instrumentals

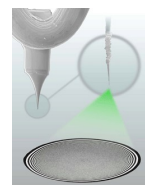
## Important publications and Highlights

Highlights in **CNRS – Institut de Physique (2012)**, **Ultra high brightness electron source...** (⇒)

**Carbon** 50 (2012) 2037, New carbon cone tip for use in a highly coherent cold field emission electron...

Houdellier F., Masseboeuf A., Monthieux M., Hÿtch M.J.

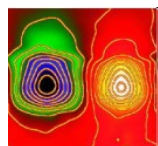
doi:10.1016/j.carbon.2012.01.023



**Physical Review Letters** 104 (2010) 127204, Dimensionality crossover in magnetism : from domain wall to vortices

Masseboeuf A., Fruchart O., Toussaint J.C. et al.

doi:10.1103/PhysRevLett.104.127204



(↑) Highlights in **Nature Chemistry** (2009), Electron holography: Measuring magnetism by Neil Withers

doi:10.1038/nchem.325

**Nano Letters** 9 (2009) 2803, Quantitative observation of magnetic flux distribution in new magnetic films...

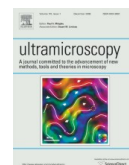
Masseboeuf A., Bayle-Guillemaud P., Marty A., Gatel C., Snoeck E.

doi:10.1021/nl900800q

**Ultramicroscopy**, 110 (2009) 20, Lorentz microscopy mapping for domain walls structure study in L1<sub>0</sub> FePd...

Masseboeuf A., Gatel C., Bayle-Guillemaud P., Marty A., Toussaint J.-C.

doi:10.1016/j.ultramic.2009.08.006 (⇒) 2010 cover



(⇒) Finalist in « **Science As Art** » compettion helded at the **MRS Fall Meeting 2007**

