

## CURRICULUM VITAE

### ALAIN BRUNELLE

born January 23, 1964

Research Director (DR1) at CNRS

Centre National de la Recherche Scientifique (CNRS)

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#### **A/ Education**

2002 “Habilitation à Diriger des Recherches”, Chemistry, Paris-Sud University, Orsay,

1990 Ph.D., Physics, Paris-Sud University, Orsay,

1986 Agrégation de Sciences Physiques, Option Physique,

1983-1987 École Normale supérieure de Saint-Cloud.

#### **B/ Professional experience**

Since 2013 Research Director (1<sup>st</sup> rank) at CNRS (ICSN, Gif-sur-Yvette)

2006-2013 Research Director (2<sup>nd</sup> rank) at CNRS (ICSN, Gif-sur-Yvette)

2002-2006 Research Associate (“Chargé de Recherche”) at CNRS (ICSN, Gif-sur-Yvette),

1990-2002 Research Associate (“Chargé de Recherche”) at CNRS (Institute of Nuclear Physics, IPN, CNRS, Orsay),

1988-1990 Ph.D. at IPN (CNRS, Orsay Gif),

1987-1988 Military Service, Professor of Physics, École Spéciale Militaire de Saint-Cyr Coëtquidan.

*From 1988 to 2002, my main research subject was the study of the interactions of energetic particles (ions, clusters, molecules, photons) with matter. A first part of this work concerned the mechanisms of energy deposition and energy relaxation of incident particles in an inorganic or molecular target. The second and complementary part concerned some instrumental developments involving time-of-flight mass analysers, new desorption-ionisation probes, and detection systems.*

*Since 2002 in charge of a project of biological imaging by mass spectrometry by cluster-TOF-SIMS and MALDI-TOF. This work is conducted in three directions: treatment and use of biological tissue sections, improvement of instrumental methods, and application to in situ studies of lipid disorders linked to human diseases and analysis of cultural heritage samples.*

*Since 2010, Head of Mass Spectrometry Group at ICSN-CNRS.*

Expertise field: Mass spectrometry instrumentation (time-of-flight analysers, detectors, ion sources), Mass Spectrometry Imaging.

**C/ Ph.D. Award of the French Mass Spectrometry Society (1990),**

**Award of the Analytical Chemistry Division of the French Chemical Society (2007)**

**RCM Beynon Prize (Best Paper published in Rapid Commun. Mass Spectrom. 2015-2016)**

**D/ Lecture at the Collège de France 5 May 2014**

<https://www.college-de-france.fr/site/philippe-walter/seminar-2014-05-05-11h30.htm>

Alain Brunelle

**E/ Member of the French Mass Spectrometry Society and of the American Society of Mass Spectrometry, Elected Member of the SIMS International Scientific Committee (2017-2023)**

Chairman of the 18th French Mass Spectrometry Conference, 2001

Past president of the French Mass Spectrometry Society, 2004-2006

Member of the scientific committee of 1st SCBA 2005, 23th JFSM 2006, Desorption 2000, Desorption 2010, SIMS XVIII 2011, SIMS XIX 2013, Desorption 2014, SIMS XX 2015

**F/ Participation in projects**

- Member of LabEx CEBA (Centre d'Etude de la Biodiversité Amazonienne) and LERMIT (Recherche sur le Médicament et l'Innovation Thérapeutique)

- Partner of EU-FP7 consortium BIOMARGIN (2013-2018): [www.biomargin.eu](http://www.biomargin.eu)

- Coordinator of project DEFIMAGE (ANR Défi de tous les saviors 2016-2019): "A great challenge for mass spectrometry imaging" [http://www.agence-nationale-recherche.fr/en/anr-funded-project/?tx\\_lwmsuivibilan\\_pi2%5BCODE%5D=ANR-15-CE29-0007](http://www.agence-nationale-recherche.fr/en/anr-funded-project/?tx_lwmsuivibilan_pi2%5BCODE%5D=ANR-15-CE29-0007)

- Coordinator of completed project MASS-IMAGE (ANR Blanc 2011-2014): "New methods in mass spectrometry imaging for the study of the Alzheimer's disease"

- Partner of completed projects: MASDA-EYE (ANR Piribio 2010-2013) "MASS Spectrometry imaging Data Analysis: application to pharmacotoxicology in EYE", ANTIPARK (ANR Emergence 2011-2013) "New neuroprotective and neuroregenerative compounds for Parkinson's disease", EICO-CF (2008-2010) and MACBAC (2006-2008), EU-FP6 consortium COMPUTIS (2006-2009) [www.computis.org](http://www.computis.org)

**G/ 132 publications** (international peer-reviewed journals, 36 in the last 5 years), 21 peer-reviewed proceedings and other journals, 4 book chapters,

h-index 37, total number of citations 3946 (source Researcher ID, April 2018)

92 invited conferences (24 plenary lectures at national and international conferences)

**H/ 10 most cited publications**

1 IMPROVEMENT OF BIOLOGICAL TOF-SIMS IMAGING WITH A BISMUTH CLUSTER ION SOURCE

D. Touboul, F. Kollmer, E. Niehuis, A. Brunelle, O. Laprévôte  
J. Am. Soc. Mass Spectrom. 16 (2005) 1608-1618  
<http://dx.doi.org/10.1016/j.jasms.2005.06.005>

2 TISSUE MOLECULAR ION IMAGING BY GOLD CLUSTER ION BOMBARDMENT

D. Touboul, F. Halgand, A. Brunelle, R. Kersting, E. Tallarek, B. Hagenhoff, O. Laprévôte,  
Anal. Chem. 76 (2004) 1550-1559  
<http://dx.doi.org/10.1021/ac035243z>

3 IMPACT OF SLOW GOLD CLUSTERS ON VARIOUS SOLIDS. NON LINEAR EFFECTS IN SECONDARY ION EMISSION

M. Benguerba, A. Brunelle, S. Della-Negra, J. Depauw, H. Joret, Y. Le Beyec, M.G. Blain, E.A. Schweikert, G. Ben Assayag, P. Sudraud  
Nucl. Instrum. Methods Phys. Res. B 62 (1991) 8-22  
[http://dx.doi.org/10.1016/0168-583X\(91\)95922-Z](http://dx.doi.org/10.1016/0168-583X(91)95922-Z)

4 BIOLOGICAL TISSUE IMAGING WITH TIME-OF-FLIGHT SECONDARY ION MASS SPECTROMETRY AND CLUSTER ION SOURCES

A. Brunelle, D. Touboul, O. Laprévôte  
J. Mass Spectrom. 40 (2005) 985-999  
<http://dx.doi.org/10.1002/jms.902>

5 TRACKS IN METALS BY MEV FULLERENES

H. Dammak, A. Dunlop, D. Lesueur, A. Brunelle, S. Della-Negra, Y. Le Beyec, Phys. Rev. Lett. 74 (1995) 1135-1138  
<http://dx.doi.org/10.1103/PhysRevLett.74.1135>

6 GIANT METAL SPUTTERING YIELDS INDUCED BY 20-5000 KEV/ATOM GOLD CLUSTERS

H.H. Andersen, A. Brunelle, S. Della-Negra, J. Depauw, D. Jacquet, Y. Le Beyec, J. Chaumont, H. Bernas  
Phys. Rev. Lett. 80 (1998) 5433-5436  
<http://dx.doi.org/10.1103/PhysRevLett.80.5433>

7 VERY LARGE GOLD AND SILVER SPUTTERING YIELDS INDUCED BY KEV TO MEV ENERGY AUN CLUSTERS (N = 1-13)

S. Bouneau, A. Brunelle, S. Della-Negra, J. Depauw, D. Jacquet, Y. Le Beyec, M. Pautrat, M. Fallavier, J.C. Poizat, H.H. Andersen  
Phys. Rev. B 65 (2002) 144106, 1-8  
<http://dx.doi.org/10.1103/PhysRevB.65.144106>

8 ENERGY LOSS BY MEV CARBON CLUSTERS AND FULLERENE IONS IN SOLIDS

K. Baudin, A. Brunelle, M. Chabot, S. Della-Negra, D. Gardès, P. Håkansson, Y. Le Beyec, A. Billebaud, M. Fallavier, J. Remillieux, J.P. Thomas, J.C. Poizat  
Nucl. Instrum. Methods Phys. Res. B 94 (1994) 341-344  
[http://dx.doi.org/10.1016/0168-583X\(94\)95376-7](http://dx.doi.org/10.1016/0168-583X(94)95376-7)

9 IMZML – A COMMON DATA FORMAT FOR THE FLEXIBLE EXCHANGE AND PROCESSING OF MASS SPECTROMETRY IMAGING DATA

T. Schramm, A. Hester, I. Klinkert, J.P. Both, R.M.A. Heeren, A. Brunelle, O. Laprévôte, M.F. Robbe, M. Stoeckli, B. Spengler, A. Römpf  
J. Proteomics 75 (2012) 5106-5110  
<http://dx.doi.org/10.1016/j.jprot.2012.07.026>

10 LIPID IMAGING BY GOLD CLUSTER TIME-OF-FLIGHT - SECONDARY ION MASS SPECTROMETRY: APPLICATION TO DUCHENNE MUSCULAR DYSTROPHY

D. Touboul, A. Brunelle, F. Halgand, S. De La Porte, O. Laprévôte, J. Lipid Res. 46 (2005) 1388-1395  
<http://dx.doi.org/10.1194/jlr.M500058-JLR200>