

Baptiste Mouginot

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Education

10/2007 - 12/2010	Ph.D in Sciences, University of Paris XI, France , " <i>Search for Giant Pairing Vibration & Life time measurement using PLUNGER method in ^{74}Zn</i> ".
2004 - 2007	MASTER DEGREE in Nuclei, Particles, Astro-Particles and Cosmology , University of Paris XI.

Professional Experiences

10/2015 - present	Assistant Visiting Scientist, Department of Nuclear Engineering, University of Wisconsin-Madison , " <i>Electro-nuclear systems and dynamic fuel cycle calculations</i> " : developement of Cyclus fuel cycle tool, analyzed scenarios in support of Fuel Cycle Option campaign, fuel fabrication and cross section prediction models.
08/2012 - 07/2015	Scientist, Subatech, Nantes (FRANCE) , " <i>Electro-nuclear systems and dynamic fuel cycle calculations</i> " : development of CLASS, a dynamic fuel cycle simulations software, fuel fabrication and cross section prediction models, fuel cycle calculations.
08/2011 - 07/2012	Postdoctoral position, Subatech , " <i>Electro-nuclear systems and dynamic fuel cycle calculations</i> ".
10/2007 - 12/2010	Research Assitant, Institut de Physique Nucléaire d'Orsay , " <i>Search for Giant Pairing Vibration & Life time measurement using PLUNGER method in ^{74}Zn : γ and mass spectroscopy</i> , data analysis, C/C++ development.

Teaching

2011/2014	Lecturer in calculus of variations, Ecole des Mines de Nantes (EMN) , $3 \times 12\text{h}$. Projects supervision, EMN , $2 \times 20\text{h}$ & $3 \times 23\text{h}$.
2011/2013	Laboratory Instructor of Analog electronics, EMN , $2 \times 18\text{h}$.
2013	Master 2 Internship supervision, EMN , 6 months.
2012	Master I Internship supervision, EMN , 7 weeks.

Skills

Simulation	LISE++, SRIM, Geant4, MCNP/MCNPX, MURE, CLASS, Cyclus.
Software Development	C/C++, Shell Script, Python.
Version Control	svn, git.
Continuous Integration	GitHub/GitLab, CircleCI, Docker.
Languages	English (fluent), French (native speaker), German (scholar).

Main Scientific Contributions

- 2016 - "Impact of Isotope Fidelity on Fuel Cycle Calculations" **B. Mouginot, P.P.H. Wilson, R.W. Carlsen**, *Winter ANS 2016*, Las Vegas, U.S.A (11/2016) : oral presentation.
- 2015 - "A neural network approach for burn-up calculation and its application to the dynamic fuel cycle code CLASS", **B. Leniau, B. Mouginot, T. Thiolière et al.**, *Annals of Nuclear Energy*, 81, (2015).
 - "MOX fuel enrichment prediction in PWR using polynomial models", **B. Mouginot, B. Leniau, T. Thiolière et al.**, *Annals of Nuclear Energy*, 85 (2015).
- 2014 - "Core Library Advanced Scenario Simulation, Principle & Application." **B. Mouginot, B. Leniau, N. Thiolière et al.**, *PHYSOR 2014*, Kyoto, Japon (09/2014) : poster.
- 2013 - "CLASS : Core Library for Advanced Scenario Simulation." **B. Mouginot, N. Thiolière**, *TCADS 2*, Nantes, France : oral presentation.
 - "A high power ADS concept for the minor actinides transmutation." **N. Thiolière, B. Mouginot, J.B. Clavel**, *TCADS 2*, Nantes, France : oral presentation.
- 2012 - "GEDEPEON Bilan" **B. Mouginot, N. Thiolière and J.B. Clavel**, *GEDEPEON*, Paris, France (décembre 2012) : oral presentation.
 - "Lifetime measurement of 2+1 state in ^{74}Zn by differential plunger method", **M. Niikura, B. Mouginot et al.**, *Physical Review C*, 85, (2012).
- 2011 - "Search for the Giant Pairing Vibration through (p,t) reactions around 50 and 60 MeV", **B. Mouginot, E. Khan, N. Retief et al.**, *Physical Review C*, 83, (2011).
- 2010 - "Exploring life-time of low-lying states in neutron rich nuclei towards ^{78}Ni with the plunger technique at GANIL", **B. Mouginot, M. Niikura et al.**, *EURORIB'10*, Lamoura, France : oral presentation.
- 2008 - "Search of the Giant Pairing Vibration mode in nuclei", **B. Mouginot, E. Khan, R. Neveling et al.**, *LEA COLLIGA Meeting*, Catane, Italie : oral presentation.
 - "Giant Pairing Vibrations : experimental overview", **B. Mouginot, E. Khan, R. Neveling et al.**, *Probing pair correlations : experimental tools and associated models, Workshop*, Saclay, France : oral presentation.

Experimental Contributions

- 06/2009 and 10/2009 **Plunger experiment ^{74}Zn** , GANIL, France : simulation, set-up, participation, online analysis and data analysis.
- 03/2009 and 03/2007 **GPV experiment**, iThemba LABS, South Africa : simulation, participation and data analysis.
- 09/2008 **Beam purification test at LISE line**, GANIL, France.
- 11/2007 **TIARA-MUST2-VAMOS-EXOGAM campaign**, GANIL, France : participation to $^{20}\text{O}(d,t)$ experiment and data analysis of the $^{36}\text{S}(d,t)/(d,^3\text{He})$ test experiment.

Scientific Communications

Peer Reviewed articles

- 2015 - "Prediction of required MgO volumic fraction in ADS fuel dedicated to minor actinides transmutation", **N. Thiolière, F. Courtin, B. Leniau, B. Mouginot et al.**, *Progress in Nuclear Energy*, 85, (2015).
- "MOX fuel enrichment prediction in PWR using polynomial models", **B. Mouginot, B. Leniau, T. Thiolière et al.**, *Annals of Nuclear Energy*, 85, (2015).
- "A neural network approach for burn-up calculation and its application to the dynamic fuel cycle code CLASS", **B. Leniau, B. Mouginot, T. Thiolière et al.**, *Annals of Nuclear Energy*, 81, (2015).
- 2014 - "Advanced plutonium management in PWR, complementarity of thorium and uranium", **M. Ernoult et al.**, *Progress in Nuclear Energy*, 78, (2014).
- 2013 - "Structure of ^{80}Ge revealed by the β decay of isomeric states in ^{80}Ga : Triaxiality in the vicinity of ^{78}Ni ", **D. Verney, B. Tastet et al.**, *Physical Review C*, 87, (2013).
- 2012 - "Lifetime measurement of 2+1 state in ^{74}Zn by differential plunger method", **M. Niikura, B. Mouginot et al.**, *Physical Review C*, 85, (2012).
- "First $g(2^+)$ measurement on neutron-rich ^{72}Zn , and the high-velocity transient field technique for radioactive heavy-ion beams", **E. Fiori et al.**, *Physical Review C*, 85, (2012).
- "Low-lying neutron fp -shell intruder states in ^{27}Ne ", **S.M. Brown, W. N. Catford, J.S. Thomas et al.**, *Physical Review C*, 85, (2012).
- "Structure of the N=50 As, Ge, Ga nuclei", **E. Sahin et al.**, *Nuclear Physics A*, 893, (2012).
- 2011 - "Emergence of the N = 16 shell gap in ^{21}O ", **B. Fernandez-Dominguez, J.S. Thomas et al.**, *Physical Review C*, 84, (2011).
- "Search for the giant pairing vibration through (p,t) reactions around 50 and 60 MeV", **B. Mouginot, E. Khan, N. Retief et al.**, *Physical Review C*, 83, (2011).
- 2009 - "Experimental study of ^{84}Ga β decay : Evidence for a rapid onset of collectivity in the vicinity of ^{78}Ni ", **M. Lebois, D. Verney, F. Ibrahim, S. Essabaa et al.**, *Physical Review C*, 80, (2009).
- "Study of the $^{20}\text{O}(d,t)$ Reaction with the TIARA-MUST2-VAMOS-EXOAM Setup", **A. Ramus et al.**, *International Journal of Modern Physics E*, (2009).
- "Structure of the Neutron Rich Ga and Ge Isotopes Observed at Alto", **D. Verney, M. Lebois, F. Ibrahim, S. Essabaa et al.**, *International Journal of Modern Physics E*, (2009).

Conference Proceedings

- 2017 - "An Integrated Nuclear Archaeology Approach to Reconstructing Fissile Material Production Histories", **M. Götttsche, B. Mouginot et al.**, *ESDRA 2017*, Düsseldorf, Germany (2017).
- 2015 - "Mean Cross Section Prediction in PWR-MOX Using Neural Network " **B. Leniau, B. Mouginot, N. Thiolière et al.**, *GLOBAL 2015*, Paris, France (2015).
- "ADS Fuel Loading Model for Minor Actinides Transmutation Scenarios " **N. Thiolière, F. Courtin, B. Mouginot, B. Leniau et al.**, *GLOBAL 2015*, Paris, France (2015).
- 2014 - "Core Library Advanced Scenario Simulation, Principle & Application." **B. Mouginot, B. Leniau, N. Thiolière et al.**, *PHYSOR 2014*, Kyoto, Japon (2014).
- 2013 - "CLASS : Core Library for Advanced Scenario Simulation." **B. Mouginot, N. Thiolière**, *TCADS 2*, Nantes, France (2013).
- "A high power ADS concept for the minor actinides transmutation." **N. Thiolière, B. Mouginot, J.B. Clavel**, *TCADS 2*, Nantes, France (2013).
- 2010 - "Lifetime measurement of $2^+_{1/2}$ state in ^{74}Zn with differential Plunger technique", **M. Niikura, B. Mouginot et al.**, *XLV Zakopane Conference on Nuclear physics "Extremes of the Nuclear Landscape"*, Zakopane, Pologne (2010).
- "Lifetime measurement of $2^+_{1/2}$ state in ^{74}Zn with differential Plunger technique", **M. Niikura, B. Mouginot et al.**, *11th Symposium on Nuclei in the Cosmos*, Heidelberg, Allemagne (2010).

- "Spectroscopic study of ^{26}Si for application to nova gamma-ray emission", **N. de Séréville et al.**, *FINUSTAR3*, Rhodes, Grèce (2010).
- "Spectroscopic study of ^{26}Si for application to nova gamma-ray emission", **N. de Séréville et al.**, *NIC XI*, Heidelberg, Allemagne (2010).
- 2009**
 - "Probing High-Velocity Transient-Field Strength Using Heavy-ions Traversing Fe and Gd", **E. Fiori, G. Georgiev, A. E. Stuchbery, A. Jungclaus, et al.**, *Nuclear Structure and Dynamics*, Dubrovnik, Croatia (2009).
 - "Magnetic moment of the 2+ state in the neutron-rich radioactive ^{72}Zn using the High-Velocity Transient-Field technique", **E. Fiori, G. Georgiev, A. E. Stuchbery, A. Jungclaus, et al.**, *Nuclear Structure and Dynamics*, Dubrovnik, Croatia (2009).
 - "Does transfer confirm knockout results for spectroscopic factor suppression with radioactive beams?", **J.S. Thomas et al.**, *Nuclear Structure and Dynamics*, Dubrovnik, Croatia (2009).
- 2008**
 - "Structure of the neutron rich Ga and Ge isotopes observed at Alto", **M. Lebois, D. Verney, E. Ibrahim, S. Essabaa et al.**, *Japanese French Symposium - New paradigms in Nuclear Physics*, Paris, France (2008).
 - "Study of the $^{20}\text{O}(\text{d},\text{t})$ reaction with the TIARA-MUST2-VAMOS-EXOAM setup", **A. Ramus et al.**, *Japanese French Symposium - New paradigms in Nuclear Physics*, Paris, France (2008).

Workshops/Conferences

- 2016**
 - "Impact of Isotope Fidelity on Fuel Cycle Calculations" **B. Mouginot, P.P.H. Wilson, R.W. Carlsen**, *Winter ANS 2016*, Las Vegas, U.S.A (11/2016) : oral presentation.
 - "Transition Analysis with Cyclus" **B. Mouginot et al.**, *Dynamic Nuclear Fuel Cycle Workshop*, Paris, France (2016) : oral presentation.
- 2015**
 - "CLASS Overview" **B. Mouginot**, *CLASS/CYCLUS Workshop*, Madison, Wisconsin, USA (2015) : oral presentation.
 - "French Fleet Application" **B. Mouginot**, *CLASS/CYCLUS Workshop*, Madison, Wisconsin, USA (2015) : oral presentation.
- 2012**
 - "CLASS, a New Tool for Nuclear Scenarios" **B. Mouginot, J.B. Clavel and N. Thiolière**, *International Conference on Nuclear Power Engineering*, Madrid, Spain (2012) : poster.
- 2010**
 - "Exploring life-time of low-lying states in neutron rich nuclei towards ^{78}Ni with the plunger technique at GANIL", **B. Mouginot, M. Niikura et al.**, *EURORIB'10*, Lamoura, France (2010) : oral presentation.
- 2008**
 - "Giant pairing vibrations : experimental overview", **B. Mouginot, E. Khan, R. Neveling et al.**, *Probing pair correlations Experimental tools and associated models, Workshop*, Saclay, France (2008) : oral presentation.
 - "Search of the Giant Pairing Vibration mode in nuclei", **B. Mouginot, E. Khan, R. Neveling et al.**, *LEA COLLIGA Meeting*, Catane, Italy (2008) : oral presentation.

References

- **Faiçal Azaiez** : Scientific Adviser (2007/2010)
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- **Serge Franchoo** : Scientific Adviser (2007/2010)
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- **Xavier Doligez** : Collaborator (2012/2015)
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- **Paul P.H. Wilson** : Scientific Adviser(2015/2017)
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