Adrien BIDAUD
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09/07/1979, PACS, 2 enfants.

1. Education:

Habilitation à Diriger des Recherches, *Université Grenoble-Alpes*, April 2017
PhD, Physics, *Paris XI-Orsay*, October 2005
Master, "Model & Instrum. in Physics", *Paris VII* (**1er, mention TB**) June 2002
Magistère, Electronique, Electrotechnique Automatique ENS Paris-Saclay September 2002
Agrégation, Physique option Physique et Electricité Appliquées (**5ème/38**) July 2001

2. Positions :

Professeur, Institut Polytechnique de Grenoble Depuis Septembre 2022
Laboratoire de Physique Subatomique et Cosmologie (LPSC/IN2P3/CNRS)
Maître de Conférence, Grenoble Institute of Technology Sept. 2006-Aug. 2022
Laboratoire de Physique Subatomique et Cosmologie (LPSC/IN2P3/CNRS)
Associate prof (part time), University Sun-Yat-Sen Since may 2015
Institut Franco Chinois de L'énergie Nucléaire
Visiting Prof., *University of California, Berkeley, USA* May to July 2017
Foreign Visitor, *Ecole Polytechnique of Montréal* March to June 2008
Lecturer , *University of Bordeaux 1-Talence* October 2005 to September 2006

Post-doc CENBG/IN2P3/CNRS - EDF R&D
PhD *IPN d'Orsay –Université Paris XI Orsay* September 2002 to October 2005
Teaching Assistant IUT Service et Réseaux de Communication, *Bobigny*
Élève Normalien, ENS *Cachan* September 1998 August 2002
Applied Physics Departement

3. Research

My research activities can be separated schematically into two packages, focused on very different scales of interest: one smaller and one bigger that the scale of the core of the nuclear reactor. Whatever the side, the common question is the one of reliability of the simulations, and the tool to answer the question is to look at the sensitivities of the models.

The smaller scale concerns nuclear data sensitivity and uncertainty studies of neutronics calculations. I have contributed to some experimental measurements of those data and developed specific projects about how to propagate the uncertainties of these nuclear data onto neutron transport simulation's results used for design and safety analysis. More specifically, I have contributed to the use of the so-called "Total Monte Carlo Approach" and to the development of sensitivity analyses tools based on Generalized Perturbation Theory. Both approach are investigated using deterministic or stochastic neutron transport methods and are applied to academic and industrial cases in the framework of collaborations with EDF, Technicatome or to the High Flux Reactor of Institut Laue Langevin in Grenoble.

The second package focuses on advanced nuclear reactor design, nuclear fuel cycle analysis and interdisciplinary research with uranium geologist, energy economy. This second part started with questions about the drivers of nuclear energy development, often reduced to waste management and uranium resources. Depending on the strategy (phase out or fast development) and the availability of uranium, the reactors that can contribute or not may be very different. But the costs of those reactors may be very different and their development may be very dependent of the global energy scenarios. This is why we have started to work with the team of energy economists of Patrick Criqui, who is simulating the long-term energy prospective. The focus of my research continued to broaden, with collaborations with economists and sociologists about the question of the use of prospective scenarios by decision makers, or with an even wider collaboration in the framework of Eco-Sesa [1], the interdisciplinary project of the Grenoble University focused on "Smart neighborhood".

Some research material is available at this address:

https://www.researchgate.net/profile/Adrien_Bidaud

4. Local and National Responsabilities

Elected member of Personnel Policies committee (since 2018) and of Board of Directors (2020-2022) of **Grenoble Institute of Technology - UGA**

Co-chair of the Nuclear Systems and Scenarios project of the NEEDS challenge, funded by CNRS, CEA, IRSN, AREVA and EDF **http://www.celluleenergie.cnrs.fr/spip.php?article256**

May 2014-december2018 : Yearly Call of Project preparation, evaluation and selection of 25 interdisciplinary projects to be given 350k€/y which represent about 70m.y of actual collaborative work. Participation to Scientific and Project Comitees. Organization of workshops ex : http://lpsc.in2p3.fr/Indico/internalPage.py?pageId=0&confId=1347

Nuclear and Energy Engineering program of PHELMA/INPG co-coordinator. Since sept 2017.

IFCEN Coordinator of INPG teaching team and research contact since 2009. (**Sino-French Institute of Nuclear Engineering and Technology**)

International relationship coordinator for nuclear engineering degree of PHELMA/INPG 2007-2017.
Foreigners welcome and help Grenoble Institute of Technology students for outgoing mobility. Opening of new potential outgoing and incoming partnerships (for internships, exchanges, double degrees), INPG representative at the European Network of Education in Nuclear. Academic/scientific advisor for the School of Nuclear Engineering and Environmental Physics of the Hanoi University of Science and Technology (HUST), Vietnam.

Elected member of PHELMA school's board (part of INPG) 2009-2012

Founder and coordinator of the International Bachelor in Nuclear Engineering (2008-2011)

http://phelma.grenoble-inp.fr/bachelor-in-nuclear-

[1] https://ecosesa.univ-grenoble-alpes.fr

engineering/?RH=1420550686006

Manager of « Safety and Risk Management» module of INPG (150h module open to any finishing students, not only Nuclear Engineers) 2007-2010

a. Research Contracts

Many activities and students were funded with very different sources (LPSC, BQR INPG, CNRS, GEDEPEON, NEEDS, Région Rhône Alpes, Carnot Energies du Futur...), linked to too many projects to be listed here. Here is a list of the most important projects for which I was task leader if not Principal Investigator:

[R2006] 2005-2006 Collaboration Research Contract EDF R&D - Centre d'Etudes Nucléaires Bordeaux Gradignan

[R2011a] 2009-2011 PEPITTE (Projet d'Etude Prospective Interdisciplinaire sur la Transition Technologique Electronucléaire) funded by the "Programme Interdisciplinaire Energies" of CNRS (2009-2011)

[R2011b] 2011 Contributions D5 and D7 deliverables of WP5 of European FP-7 project : ADS and fast reactor comparison study (ARCAS).

[R2013] 2010-1013 EDF R&D contract supporting 1 PHD Project

[R2016] Molten Salt Reactor Experiment Benchmark Evaluation, sponsored by US Departement Of Energy, PI Max Fratoni @ UC Berkeley
https://neup.inl.gov/SiteAssets/FY%202016%20Abstracts/Research%20and%20Development/CFA-16-10240_TechnicalAbstract_2016CFAAbstract10240.pdf#search=berkeley%20fratoni

[R2016] Prospective Energetique (PROSPEN), collaboration CNRS (physics/economy)/CEA, funded by Institut Carnot "Energies du Futur" for 4 years studying competitions and synergies between energy flexibility options, such as demand response, storages, load-following capacities and interconnections (between countries but also between energy vectors).

[R2018] 2018-2021 Collaboration EDF Direction Technique, Lyon – LPSC, PhD nuclear reactor uncertainties

[R2019] 2019-2022 Contract collaboration Institut Laue Langevin/Technicatome/CNRS, PhD nuclear reactor uncertainties, ILL conversion to LEU fuel

5. Students mentoring

PHD

1 ongoing, 7 defended

15 Master thesis and internships
12 Bachelor projects
1 **DRT** "Diplome de Recherche Technologique"

6. Courses and other teaching activities

I have had a "demi-délégation CNRS" during the year 2016-2017 which allows me to go for 3 months in the USA, at UC Berkeley.

In Grenoble Institute of Technology

Nuclear instrumentation Lab sessions
PWR Normal Operation (based on simulation)
ILL High Flux Reactor accident management (based on simulation)
Deterministic Neutron Transport (Courses and Lab sessions)
Numerical Methods courses and projects
Energy transfers
1st year (equivalent to last year of bachelor) engineering projects: solar heaters and solar oven constructions…

2nd year (equivalent to first year of master) engineering projects: Power system analysis, nuclear reactor operation…

Reviewer of End of project Studies (8-10/y), M1 projects (6-10/y), IFCEN Bachelor Project (20/y)

In Grenoble Ecole de Management, at the Faculty of Economics of Grenoble University, at IFCEN@Sun Yat Sen University (Guangdong, China where I go usually one or two weeks every year) and Nuclear Engineering program of ENSE3/INPG

Physics of Energy, Nuclear Energy Economics

7. Other

2019 Science festival : preparation of animations for middle/high schools during 2 days and then for the general public over the weekend. https://www.echosciences-grenoble.fr/articles/retour-sur-la-fete-de-la-science-2018-a-grenoble-en-14-videos

2016 Organization of the one week seminar of French Physics Society « Dautreppe »: on the theme « Demain, L'Energie ». Edition/traduction/rédaction de l'éditorial du numéro spécial des « Comptes-Rendus de l'Académie des Sciences Physiques », publié chez Elsevier.

http://www.sciencedirect.com/journal/comptes-rendus-physique/vol/18/issue/7