

Curriculum Vitae (Short)
François Diaz-Maurin, Ph.D.

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Summary

I am a scientist and engineer trained in nuclear materials, geochemistry of radionuclides and nuclear security (Stanford University, 2017–2019), environmental science and technology (Ph.D., Universitat Autònoma de Barcelona, 2013, *summa cum laude*), and civil engineering (B.Sc./M.Sc., University of Rennes 1, 2004/2007, both with distinction). Before starting my Ph.D. in 2011, I worked 4 years as a structural and mechanical engineer on various major R&D projects in the nuclear industry in France and the United States. I am currently a European Commission's Marie Skłodowska-Curie Fellow at Amphos 21 Consulting S.L., Barcelona, Spain. From 2017 to 2019, I was a MacArthur Foundation Nuclear Security Visiting Scholar at the Center for International Security and Cooperation (CISAC), Stanford University, USA.

I am interested in the study of the technical and normative aspects of radioactive waste management and nuclear fuel cycle strategies, as well as on the study of opportunities and constraints for nuclear energy in transitioning towards low-carbon economies. My current research focuses are: I-Multi-scale integration of nuclear waste disposal systems. II-Back-end integration of the nuclear fuel cycle. III-Assessment of sustainability levels of nuclear fuel cycles. IV-Study of long-term societal impacts of energy transition scenarios and deep decarbonization pathways.

Current Positions

Marie Skłodowska-Curie Fellow, Amphos 21 Consulting S.L., Barcelona (Spain), 2019–

Affiliate, Center for International Security and Cooperation (CISAC), Stanford University, CA (USA), 2019–

Previous Positions

MacArthur Foundation Nuclear Security Visiting Scholar, CISAC, Stanford University (USA), 2017–2019

Postdoctoral Research Fellow, Department of Humanities, Universitat Pompeu Fabra (Spain), 2016–2017

Postdoctoral Research Fellow, Institute of Environmental Science and Technology (ICTA), Universitat Autònoma de Barcelona (Spain), 2013–2016

Ph.D. Candidate, ICTA, Universitat Autònoma de Barcelona (Spain), 2011–2013

Mechanical Engineer, AREVA Federal Services LLC (AFS), Boston, MA (USA), 2010

Structural Engineer, AREVA Inc. North America, Boston, MA (USA), 2009

Structural Engineer, SETEC Travaux Publics & Industriels (TPI), Paris (France), 2007–2008

Education

Ph.D. in Environmental Science and Technology (*Summa Cum Laude*), ICTA, Universitat Autònoma de Barcelona (Spain), Feb. 2011–Oct. 2013

Dissertation: The Viability and Desirability of Alternative Energy Sources: Exploring the Controversy over Nuclear Power. Advisors: ICREA Research Prof. Mario Giampietro and Prof. Jesús Ramos Martín. The dissertation received the “Extraordinary Ph.D.” Award from the Universitat Autònoma de Barcelona in June 2017.

M.Sc. Degree in Civil Engineering (First class honors with Distinction), Department of Civil Engineering, INSA Graduate School, University of Rennes 1 (France), Sep. 2004–Jun. 2007

Dissertation: Soil-Structure Interaction of a Nuclear Reactor Building at the Flamanville EPR Power Plant. Advisors: Dr. Michel Kahan, CEO, Setec TPI, Paris, France and Prof. Samy Guezouli, Structural Engineering Research Group, INSA Graduate School, University of Rennes 1, France.

B.Sc. Degree in Civil Engineering (First class honors with Distinction), Department of Civil Engineering, University of Rennes 1 (France), Sep. 2002–Jun. 2004

Language Skills

I read, write and speak fluently four languages: French, English, Spanish, and Catalan.

Awards, Mentions and Distinctions

MEP-Scientist Pairing Scheme, European Parliament, 2017–

Among the 15 MSCA Fellows selected by the European Commission's Joint Research Center (JRC) to be part of the MEP-Scientist Pairing Scheme which aims at establishing a long-term, cooperation between Members of the European Parliament and 85 European researchers. I was among the 18 MEP-Scientist pairs established in 2017.

“Extraordinary Ph.D.” Award, UAB, 2017

Received from the School for Doctoral Studies together with the UAB Alumni Association of the Universitat Autònoma de Barcelona. The award consists of a competitive call among the researchers whose doctoral thesis received the qualification of excellence “Cum Laude” from the tribunal.

ELEEP Founding Member, Emerging Leaders in Environmental and Energy Policy (ELEEP), 2011–2014

Organized by the Atlantic Council (Washington DC, USA) and the Ecologic Institute (Berlin, Germany)

“Synergy in Education” Award (shared with ICREA Research Prof. Mario Giampietro), 2011

Received from the Board of Trustees of the Universitat Autònoma de Barcelona for our project “Our Energy Futures” with 11 Catalan high-schools. The jury has valued the originality in the project's approach, the current nature of the subject matter, as well as the impact of the project's results and dissemination through a dedicated web platform.

Relevant Professional Experience

Mechanical Engineer, AREVA Federal Services LLC (AFS), Boston, MA (USA), Jan.–Nov. 2010

Project: Hanford Vitrification Plant (Hanford Site, WA), the world's largest radioactive waste treatment plant, used for vitrifying Hanford's tank waste for the U.S. Department of Energy (DOE)

Structural Engineer, AREVA Inc. North America, Boston, MA, USA, Jan.–Dec. 2009

Project: Civil/structural engineering support to the Probabilistic Risk Assessment unit for the Design Certification Licensing of the US EPR™, a generation III+ nuclear reactor, by the Nuclear Regulatory Commission (NRC)

Structural Engineer and Assistant to the Project Director, SETEC Travaux Publics & Industriels (TPI),

Paris (France), Feb. 2007–Dec. 2008

Project: Structural design for BOUYGUES Construction of the reactor buildings of the EPR™ generation III+ nuclear power plant under construction in France (Flamanville3) for Electricité de France (EDF) (Taken part in the supervision team (5 pers.) to manage 150 pers., 5000 drawings, €11 million)

Teaching Experience (selected)

Instructor, **Department of Geological Sciences, Stanford University**, Winter 2018/2019

Course: “Managing Nuclear Waste: Technical, Political and Organizational Challenges” (GEOLSCI 266, Geological Sciences and INTLPOI 266, International Policy). I designed and taught the course around my research lines with the support and advice of Prof. Rodney C. Ewing. (30 contact hours, 7 graduate students)

Lecturer, **ICTA, Universitat Autònoma de Barcelona (Spain)**, 2014–2015 and 2015–2016

Course: “Interdisciplinary Concepts on Environmental, Economic and Social Sustainability” (43068-M1). (15 ECTS, 50–55 graduate students)

Publications (selected)

In preparation

Socio-technical multi-criteria evaluation of long-term nuclear waste storage options: the case of the San Onofre nuclear power station, California. With J. Yu, H. Sun, and R.C. Ewing.

Integrated spent fuel transportation scenarios in the United States. With R. Chen and R.C. Ewing.

Performance levels of geologic repositories in Argillaceous rocks. With L. Duro, J. Bruno, and R.C. Ewing.

Beyond natural analogues: long-term predictions in geologic repository behavior. With R.C. Ewing.

Completed Work

Handing-over the nuclear legacy to the next generation. Unpublished. Available upon request.

Trust and the Ethical Imperative of the U.S. Nuclear Waste Management Program. Conference paper presented at the International Studies Association (ISA) Annual Convention 2018 (San Francisco, CA, USA). Unpublished. Available upon request.

Publications in international journals

- [–] **Diaz-Maurin, F.** and R.C. Ewing. Integration of the Back-end of the Nuclear Fuel Cycle: An Overview. *MRS Advances*. Invited review article. Submitted.
- [35] **Diaz-Maurin, F.** and R.C. Ewing (2019). Probabilistic Performance Assessment vs. the Safety Case Approach. *MRS Advances* 4, 987–992. (doi: 10.1557/adv.2018.636).
- [34] **Diaz-Maurin, F.**, H.C. Sun, J. Yu, and R.C. Ewing (2019). Evolution and Structure of the Scientific Basis for Nuclear Waste Management. *MRS Advances* 4, 959–964. (doi: 10.1557/adv.218.681)
- [33] **Diaz-Maurin, F.** and R.C. Ewing (2018). Mission Impossible? Socio-technical Integration of Nuclear Waste Geological Disposal Systems. *Sustainability* 10(12): 4390. (doi: 10.3390/su10124390)
- [32] **Diaz-Maurin, F.** (2018). Chronic long-term risk of low-level radiation exposure: Bridging the lay-expert divide. *Bulletin of the Atomic Scientists* 74(5): 335–339. (doi: 10.1080/00963402.2018.1507792)
- [31] **Diaz-Maurin, F.** Atomic Homefront: a film about struggling to live with Manhattan Project radioactive waste. *Bulletin of the Atomic Scientists*, 11 June 2018. Available online: <https://thebulletin.org/2018/06/atomic-homefront-a-film-about-struggling-to-live-with-manhattan-project-radioactive-waste/>
- [30] **Diaz-Maurin, F.**, Z. Chiguvare, and G. Gope (2018). Scarcity in abundance: the challenges of promoting energy access in the Southern African region. *Energy Policy* 120, 110–120. (doi: 10.1016/j.enpol.2018.05.023)
- [29] Kiravu C., **F. Diaz-Maurin**, M. Giampietro, A.C. Brent, S.G.F. Bukkens, Z. Chiguvare, A.M. Gasennelwe-Jeffrey, G. Gope, Z. Kovacic, L. Magole, J.K. Musango, U. Ruiz-Rivas Hernando, S. Smith, A. Vázquez Barquero, and F. Yunta Mezquita (2018). Proposing a Master’s Programme on Participatory Integrated Assessment of Energy Systems to Promote Energy Access and Energy Efficiency in Southern Africa. *International Journal of Sustainability in Higher Education* 19(3), 622–641. (doi: 10.1108/IJSHE-04-2017-0048)
- [28] **Diaz-Maurin, F.** (2016). Power capacity: A key element in sustainability assessment. *Ecological Indicators* 66(C), 467–480. (doi: 10.1016/j.ecolind.2016.01.044)
- [27] **Diaz-Maurin, F.** and Z. Kovacic (2015). The unresolved controversy over nuclear power: a new approach from complexity theory. *Global Environmental Change* 31, 207–216. (doi: 10.1016/j.gloenvcha.2015.01.014)
- [26] **Diaz-Maurin, F.** (2014). Going beyond the nuclear controversy. *Environmental Science & Technology* 48(1), 25–26. (doi: 10.1021/es405282z)
- [25] **Diaz-Maurin, F.** and M. Giampietro (2013). A “grammar” for assessing the performance of power-supply systems: comparing nuclear energy to fossil energy. *Energy* 49, 162–177. (doi: 10.1016/j.energy.2012.11.014)

Book chapters

- [24] Bruno, J., L. Duro, & **F. Diaz-Maurin** (2020). Spent fuel storage and disposal. In: Piro M. (Ed.). *Advances in Nuclear Fuel Chemistry*. Woodhead Publishing. p. 450.
- [23] Giampietro, M., & **F. Diaz-Maurin** (2014). The Energy Grammar. In *Resource Accounting for Sustainability: The Nexus between Energy, Food, Water and Land Use*. London: Routledge. (pp. 90–115)
- [22] Serrano-Tovar T., J. Cadillo Benalcazar, **F. Diaz-Maurin**, Z. Kovacic, C. Madrid, M. Giampietro, R.J. Aspinall, J. Ramos-Martin, & S. Bukkens (2014). The Republic of Mauritius. In *Resource Accounting for Sustainability: The Nexus between Energy, Food, Water and Land Use*. London: Routledge. (pp. 163–180)
- [21] Madrid-Lopez, C., J. Cadillo-Benalcazar, **F. Diaz-Maurin**, Z. Kovacic, T. Serrano-Tovar, T. Gomiero, M. Giampietro, R.J. Aspinall, J. Ramos-Martin, & S. Bukkens (2014). Punjab State. In *Resource Accounting for Sustainability: The Nexus between Energy, Food, Water and Land Use*. London: Routledge. (pp. 181–193)
- [20] **Diaz-Maurin, F.**, J. Cadillo Benalcazar, Z. Kovacic, C. Madrid, T. Serrano-Tovar, M. Giampietro, R.J. Aspinall, & J. Ramos-Martin (2014). The Republic of South Africa. In *Resource Accounting for Sustainability: The Nexus between Energy, Food, Water and Land Use*. London: Routledge. (pp. 194–213)
- [19] **Diaz-Maurin, F.**, & M. Giampietro (2013). Complex Systems and Energy. In *Reference Module in Earth Systems and Environmental Sciences*. Elsevier. (doi: 10.1016/B978-0-12-409548-9.01549-9)

Conferences, Workshops and Invited Talks (selected)

- [–] **DECOVALEX Coupled Processes Symposium 2019**. University of Applied Sciences and Arts Northwestern Switzerland. (Brugg-Windisch, Switzerland). 4–5 November 2019. (No contribution)

- [38] “Integration of the Back-end of the Nuclear Fuel Cycle: An Overview”. With R.C. Ewing. **43rd Symposium on the Scientific Basis for Nuclear Waste Management. Materials Research Society and International Atomic Energy Agency (Vienna, Austria)**. 21–24 October 2019. Invited oral presentation (first author).
- [37] “Multi-scale, multi-criteria evaluation of nuclear waste repositories in different geologic settings”. With R.C. Ewing. **Goldschmidt Annual International Conference. Geochemical Society and European Association of Geochemistry (Barcelona, Spain)**. 18–23 August 2019. Poster presentation (first author). Session: 05o: Geochemical and Mineralogical Investigations Relevant to The Nuclear Fuel Cycle: Insights from Experiment, Theory, and Modelling. Chairs: R. Tinnacher (California State University East Bay), J. Luetzenkirchen (Karlsruhe Institute of Technology), F. Heberling (Karlsruhe Institute of Technology), D. Sassani (Sandia National Laboratories).
- [36] “Integration of the Back-end of the Nuclear Fuel Cycle: An Overview”. **Office of National Security and International Studies, Los Alamos Laboratory (Los Alamos, New Mexico)**. 15 May 2019. Invited talk.
- [35] “Multi-scale, multi-criteria evaluation of nuclear waste repositories in different geologic settings”. **Center for Global Security & Cooperation, Sandia National Laboratories (Albuquerque, New Mexico)**. 14 May 2019. Invited talk.
- [--] **Workshop on Recent Advances in Repository Science and Operations from International Underground Research Laboratory Collaborations, U.S. Nuclear Waste Technical Review Board (NWTRB). (Burlingame, CA)**. 24–25 April 2019. (No contribution)
- [34] “What Has Been the Evolution and Structure of the Scientific Basis for Nuclear Waste Management?”. With H.C. Sun, J. Yu, and R.C. Ewing. **42nd Symposium on the Scientific Basis for Nuclear Waste Management, 2018 MRS Fall Meeting and Exhibit of the Materials Research Society (Boston, MA)**. 25–30 November 2018. Oral presentation (first author). Session: ET15.01 – Perspectives on Strategy, Risk and Uncertainty in Radioactive Waste Management. Chairs: John McCloy (Washington State University, USA) and Wooyong Um (Pohang University of Science and Technology, South Korea)
- [33] “Uncertainty in Safety Assessments of Geological Repositories—Quantitative Performance Assessment vs the Safety Case Approach”. With R.C. Ewing. **42nd Symposium on the Scientific Basis for Nuclear Waste Management, 2018 MRS Fall Meeting and Exhibit of the Materials Research Society (Boston, MA)**. 25–30 November 2018. Oral presentation (first author). Session: ET15.01 – Perspectives on Strategy, Risk and Uncertainty in Radioactive Waste Management. Chairs: John McCloy (Washington State University, USA) and Wooyong Um (Pohang University of Science and Technology, South Korea)
- [--] **Goldschmidt Annual International Conference. Geochemical Society and European Association of Geochemistry (Boston, MA)**. 12–17 August 2018. (No contribution)
- [32] “Trust and the Ethical Imperative of the U.S. Nuclear Waste Management Program”. **International Studies Association (ISA) Annual Convention 2018 (San Francisco, CA, USA)**. 4–7 April 2018. Oral presentation. Chair: Scott Sagan (Stanford University). Discussant: Steve Miller (Harvard Kennedy School).
- [31] “The Use of Complexity in Sustainability Assessment: Origins, Principles and Applications”. **Energy Systems and Modeling Group (ESMG), School of Earth, Energy & Environmental Sciences, Stanford University (USA)**. 7 February 2018. Oral presentation. Invited by Prof. Sally Benson (Stanford University).
- [30] “A New Perspective on Nuclear Waste Management: Facing the Technical and Social Challenges of a Complex Science-Policy Issue”. **CISAC Science Seminar series, Center for International Security and Cooperation (CISAC), Stanford University (USA)**. 4 December 2017. Oral presentation. Invited by Prof. Rodney C. Ewing (Stanford University).
- [29] “Building trust in nuclear waste management through participatory quantitative story telling”. **Science Meets Parliament and “Brussels Week”, Science and Technology Options Assessment (STOA), European Parliament (Brussels, Belgium)**. 28–30 November 2017. Oral presentation. Invited by Wolfgang Hiller (European Parliament)
- [28] “The Use of Complexity in Sustainability Assessment: Origins, Principles and Applications”. **Stanford Complexity Symposium, Stanford University (USA)**. 14 November 2017. Oral presentation.
- [27] “Building trust in the scientific basis for long-term nuclear waste management through quantitative story telling”. **3rd International Conference on Risk Perception, Communication and Ethics of Exposures to Ionising Radiation (RICOMET), International Atomic Energy Agency (IAEA) (Vienna)**.

Austria). 27–29 June 2017. Oral presentation. Session: Social and ethical aspects in, and of, long-term exposure situations. Chairs: Pascal Crouail (CEPN, France), Michiel Van Oudhesden (SCK-CEN, Belgium) and Marie Simon Cornu (IRSN, France)

Scientific Societies and Professional Affiliations

Active member: American Nuclear Society (ANS), Materials Research Society (MRS), European Association of Geochemistry (EAG), European Geosciences Union (EGU), European Association for the Study of Science and Technology (EASST)

Alumni: Emerging Leaders in Environmental and Energy Policy (ELEEP), Marie Curie Alumni Association (MCAA), Association INSA Alumni Rennes (France)

Past member: Liphe4 Scientific Association (Barcelona, Spain), International Society for Ecological Economics (ISEE)

References available upon request.