

Marie SIMONIN, Ph.D

Researcher at INRAE - Research Institute in Horticulture and Seeds (IRHS)

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Born 21st of August 1988

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Research Interests

Plant-microbiome interactions and microbiome engineering
Impact of abiotic and biotic disturbances on microbiome activity and diversity
Interactive effects of different global change agents (contaminants, nutrient pollution, CO₂)

Education

- **HDR (2023) : Accreditation to supervise research (University of Angers)**
- **Qualification aux fonctions de maître de conférences – Section CNU 67 (2015)**
- **Ph.D (2012 –2015): Microbial Ecology Laboratory (University Claude Bernard - Lyon, France) and Laboratory of Transfer in Hydrology and Environment (University Joseph Fourier - Grenoble, France)**
Advisors: Pr Agnès Richaume-Jolion and Dr Jean Martins
- **MSc. Degree in Ecology, Biodiversity, Evolution (2010–2012): University Pierre & Marie Curie Paris VI, France. Specialty: Biodiversity and Functioning of Ecosystems – Ecological engineering**
- **BSc. Degrees (2007 – 2010): University of Caen-Basse Normandie, France**
- License of Biology of organisms and License of Geography

Professional experiences

- **Research Director - Directrice de Recherche (Jan 2026 - Present): INRAE - IRHS in EmerSys team (Angers, France)** *Plant microbiome inheritance through seeds across the cultivated plant diversity*
- **Research Scientist – Chargée de Recherche (Oct 2019 - Dec 2025): INRAE - IRHS in EmerSys team (Angers, France)** *Seed microbiome engineering to protect plant health.*
- Maternity leave between January 2022 and May 2022
- **Postdoctoral associate (Jan 2019 - Sept 2019): IRD - Interaction Plant - Microorganism - Environment Lab (Montpellier, France)** *Impact of biotic disturbances and agricultural practices on the plant microbiome of diverse crops in West Africa and South-East Asia. Supervisor: Lionel Moulin*
- **Postdoctoral associate (2016 - 2018): Biology Department (Duke University, NC, USA)**
Impact of anthropogenic disturbances on the diversity and function of microbial communities in aquatic and terrestrial ecosystems. Supervisor: Emily Bernhardt
- **Graduate researcher (2012- 2015): Microbial Ecology Laboratory (University Claude Bernard - Lyon) and Laboratory of Transfer in Hydrology and Environment (University Joseph Fourier - Grenoble)**
Thesis title: Dynamic, reactivity and ecotoxicity of metal oxide nanoparticles in soil: impact on functions and diversity of microbial communities. Advisors: Pr Agnès Richaume-Jolion and Dr Jean Martins

Grant Funding

- **Recent Grant Funding (out of 12 funded projects):**

2024-2028: ANR JCJC: **INHERSEED – Plant microbial INHERitance across generations through SEEDs:**

impact of this primary inoculum on plant fitness and microbiota assembly (357,000€) – PI

2024-2027: Biodiversa+ BiodivMon: **Grass4Fun-Monitoring the contribution of European grasslands to the conservation of soil biodiversity and ecosystem function under multiple global change stressors** (1,600,000€) – WP leader

2025-2029: ANR PRC: **Plant-MANA - Plant-Driven microbiome Management through biological denitrification inhibition: a new strategy to limit Nitrogen loss in Agroecosystems** (563,000€) – Co-PI

2021-2026: ANR PPR-CPA **SUCSEED – Stopping the Use of pestiCides on SEEDs** (3 M€) - WP Leader

2022-2024: CNRS EC2CO Microbiome **MiRe-A : Microbiote et Renouées du Japon : de l'initiation au contrôle du cycle de l'Azote (50 k€)** – Co-PI.

2020-2022: RFI Objectif Vegetal **BacFungiMix - Mixed synthetic microbiota "bacteria - fungi" for seed protection against the pathogenic fungus Alternaria brassicicola.** (30 k€) – Co-PI

2020-2022: RFI Objectif Vegetal **OSMOSE - impact of Seed Microbiota on Seedling Emergence** (30 k€) - PI

2020-2022: INRAE MP Holoflux : **HOUSE L'Holobionte plante-microbiote rhizosphérique** (50k€) - Co-PI

Teaching and Supervision

- **Teaching assistant (2012 – 2015, 64h per year) – BSc and MSc degrees**

Plant Biology (2012-2014) – Licence 1, **Microbiology** (2012-2015) – Licence 2

General Ecology (2013-2014) – Licence 2, **Agronomy – Plant/Soil interactions** (2013-2015) – Master 1

Pedology (2013-2015) – Master 1

Integrative Bioinformatic for Investigating and Engineering Biomes - IBIEM Program (2018) Duke University:
Teacher in a PhD level microbiome program

Master Program Marine Microbial Ecology from genomes to biomes - Stockholm University (2021): 3h

- **Recent Teaching Activities**

~20h per year at **Master level** (Univ Angers, Institut Agro, AgroParisTech, VetAgroSup)

Summer Schools Saclay Plant Science and SUCSEED (2022, 2024)

- **Supervision**

- **Student supervision**

2 postdocs: Tristan Lafont Rapnouil (2025-), Kenji Maurice (2025-)

8 PhD students: Matthew Ruis (2016), Jessica Brandt (2017-2018), Brittany Perrotta (2016-2020), Anne-Sophie Masson (2019-2021), Mariam Barro (2019-2020), Marie-Thérèse Mofini (2019-2020), Gontran Arnault (2021-2024), Louna Colaert-Sentenac (2023-2026), Logan Suteau (2023-2026), Gillian Bergmann (2024, UC Davis)

7 MSc students (2nd year): Julien Guyonnet (2013), Armelle Crouzet (2015), Karen Jin (2020), Arthur Fouillé (2021), Louna Colaert-Sentenac (2023), Oscar Joubert (2024), Pauline Lenfant (2025)

3 MSc students (1st year): Pauline Bazoge (2013), Mia Lee (2015) and Sofia Bounakdja (2015)

5 BSc students: Morgane Ginot (2013), Mathilde Graillat (2014), Claire Thomas (2017), Melissa Marchese (2017), Lindy Pittman (2018)

2 REU students: Lucia Mercado and Alison Waldman (2016). **1 High School students:** Wyatt Jernigan (2016)

- **Research Assistants:** Steven Anderson (2016-2018), Christina Bergemann (2016-2017), Anne Préveaux (2019-), Coralie Marais (2019-) + 4 Summer technicians

- **Jury member in PhD committees and defenses**

14 PhD committees and 10 PhD defenses (3 as examiner, 7 as reviewer)

Other Professional Activities / Service / Outreach

- **Reviewing activities and Expertise**

Article Review for Nature Microbiology, ISME Journal Molecular Ecology, FEMS Microbiology Ecology, Phytobiomes, Ecology, Plant & Soil, Environmental Science and Technology, Soil Biology and Biochemistry, Geoderma...

Grant Review for the Swiss National Science Foundation, Labex ARBRE, ANR, ISF, Ecophyto

Editorial Board Member at the ISME Journal (2025-)

Expertise for the Working group European agriculture without pesticides in 2050 (ANR, PPR-CPA, 2021)

- **Conference, Seminar and Session Organization**

Organization of the annual meeting of the INRAE Holoflux Metaprogramme (2022-2023)

Organization of the weekly journal club of the EmerSys team

Chair of a microbiome session at SETAC Europe 2019, 2020, 2021

Co-chair of a Special Session at the SFS Annual meeting (Raleigh, June 2017)

Organization of the annual meeting of the Doctoral school E2M2 (2013, 2014, 2015)

Organization of the "start-up issues meeting" of the FST, University Lyon 1 (2014)

- **Member of scientific boards and steering committees + other services**

Steering committee of the INRAE metaprogramme Holoflux (2023-)

Scientific board of the HiMic - High throughput Microbiology platform (SFR QuaSav, Angers)

Member of the scientific counsel of the Rencontres Plante-Bactérie (2022-)

Member of the scientific chair of the IRHS Unit (2022-)

In charge of the communication of the EmerSys team (website, Twitter, 2020-)

Secretary of the PhD student Association Doc E2M2 (2012 – 2015)

Student representative of the Doctoral School E2M2 (2012 – 2015)

- **Outreach**

Article on plant microbiota in [Planet-Vie](#)

Contribution to a Youtube video by [Dr Nozman](#) on the regeneration of ecosystems (2021)

Writing of a The Conversation article (2021): [Scientists at work: We use environmental DNA to monitor how human activities affect life in rivers and streams](#)

Outreach with the NCSSM in Durham, NC. Teacher during the Mini-Term "Stress and Microbes" 2017

Outreach in the Central Park Middle School in Durham, NC.

Outreach: "Postdocumentaries" videos with the Duke Postdoctoral Association

Outreach: GALS program: Girls on outdoor Adventures for Leadership and Science

- **Peer-Reviewed Publications (55 articles)** (up-to-date list and citations in Google Scholar)

3062 citations – h index: 27 (January 2026)

*21 articles written with *PhD student (20 articles) and §Master student (6 articles) co-authors. 7 last author articles.*

55. *Bergmann, G. E., Lui, K., Lopez, C., Velasco, A., Marais, C., Barret, M., [Simonin, M.](#), Vannette, R., & Leveau, J. H. (2025). Contribution of floral transmission to the assembly and health impact of bacterial communities in watermelon seeds. *Phytobiomes Journal*, (ja).
54. Gerna, D., *Chadelaud, T., Lamouche, F., Barret, M., Darrasse, A., & [Simonin, M.](#) (2025). Dormancy and reactivation of the seed and its microbiome: a holobiont perspective. *mSystems*, e01140-25.
53. *Suteau, L., *Colaert-Sentenac, L., Law, S. R., & [Simonin, M.](#) (2025). Transient microbial architects: tracing the legacy effects of ephemeral taxa during plant microbiome assembly. *Current Opinion in Microbiology*, 88, 102664.
52. *Saccaram, C., [Simonin, M.](#), Boutet, S., Brosse, C., Peng, S., François, T., ... & Corso, M. (2025). Elucidating the interplay between metabolites and microorganisms in the spermosphere of common bean (*Phaseolus vulgaris* L.) seeds. *mSystems*, e00707-25.
51. *Garin, T., Brault, A., Marais, C., Briand, M., Prévieux, A., Bonneau, S., [Simonin, M.](#), & Sarniguet, A. (2025). T6SS-mediated competition by *Stenotrophomonas rhizophila* shapes seed-borne bacterial communities and seed-to-seedling transmission dynamics. *mSystems*, e00457-25.
50. Elijah C Mehlferber, *Gontran Arnault, Bishnu Joshi, Laila P Partida-Martinez, Katy A Patras, [Marie Simonin](#), Britt Koskella. A cross-systems primer for designing, deploying, and evaluating synthetic microbial communities. *Nature Microbiology*.
49. §Oscar Joubert, *Gontran Arnault, Matthieu Barret, [Marie Simonin](#) (2024). Sowing success: ecological insights into seedling microbial colonisation for robust plant microbiome engineering. *Trends In Plant Science*.
48. Sulesky-Grieb, A., [Simonin, M.](#), Bintarti, A. F., Marolleau, B., Barret, M., & Shade, A. (2024). Stable, multigenerational transmission of the bean seed microbiome despite abiotic stress. *Msystems*, 9(11), e00951-24.
47. Wang, Z., Bergemann, C. M., [Simonin, M.](#), Avellan, A., Kiburi, P., & Hunt, D. E. (2024). [Interactions shape aquatic microbiome responses to Cu and Au nanoparticle treatments in wetland manipulation experiments](#). *Environmental Research*, 252, 118603.
46. *Arnault, G., Marais, C., Prévieux, A., Briand, M., Poisson, A. S., Sarniguet, A., ... & [Simonin, M.](#) (2024). [Seedling microbiota engineering using bacterial synthetic community inoculation on seeds](#). *FEMS Microbiology Ecology*, 100(4), fae027.
45. Cantarel, A. A., Signoret, A., Gervais, J., Beligon, C., Béraud, C., Boisselet, C., ... & [Simonin, M.](#), Piola, F. (2024). [Biological inhibition of denitrification \(BDI\): an early plant strategy for *Fallopia x bohemica* seedling development](#). *Annals of Botany*, 133(4), 533-546.
44. Garin, T., Brin, C., Prévieux, A., Brault, A., Briand, M., [Simonin, M.](#), ... & Sarniguet, A. (2024). [The type VI secretion system of *Stenotrophomonas rhizophila* CFBP13503 limits the transmission of *Xanthomonas campestris* pv. *campestris* 8004 from radish seeds to seedlings](#). *Molecular Plant Pathology*, 25(1), e13412.
43. [Simonin M.](#), Prévieux A, Marais C, Garin T, Arnault G, Sarniguet A, & Barret M. (2023). [Transmission of synthetic seed bacterial communities to radish seedlings: impact on microbiota assembly and plant phenotype](#). *Peer Community Journal*, 3.
42. §Bergemann CM, Avellan A, Perrotta BG, Bernhardt ES, & [Simonin M.](#) (2023). [Seasonal Differences and Grazing Pressure Alter the Fate of Gold Nanoparticles in a Microcosm Experiment](#). *Environmental Science & Technology*, 57(37), 13970-13979.
41. De Laender, F, Carpentier C, Carletti T, Song C, Rumschlag SL, Mahon MB, [Simonin M.](#), ... & Barabás G. (2023). [Mean species responses predict effects of environmental change on coexistence](#). *Ecology Letters*.
40. Rumschlag SL, Mahon MB, Jones DK, Battaglin W, Behrens J, Bernhardt, ES, ... [Simonin M.](#), ... & Rohr JR. (2023). [Density declines, richness increases, and composition shifts in stream macroinvertebrates](#). *Science Advances*, 9(18), eadf4896.
39. *Perrotta BG, [Simonin M.](#), Colman BP, Anderson SM, Baruch E, Castellon BT, ... & King RS. (2023). [Chronic Engineered Nanoparticle Additions Alter Insect Emergence and Result in Metal Flux from Aquatic Ecosystems into Riparian Food Webs](#). *Environmental Science & Technology*.
38. Helton, AM, Morse JL, Sudduth EB, Ardón M, Bier R, Voss KA, ... [Simonin M.](#), ... & Vlah, M. J. (2023). [At the interfaces of the hydrologic sciences: Connecting water, elements, ecosystems, and people through the major contributions of Dr. Emily Bernhardt](#). *Journal of Hydrology*, 129251.

37. *Chesneau G, Laroche B, Préveaux A, Marais C, Briand M, Marolleau B, [Simonin M](#), Barret M. (2022). [Single seed microbiota: assembly and transmission from parent plant to seedling](#). *mBio*, e01648-22.
36. *Barro M, Wonni I, [Simonin M](#), Kassankogno AI, Klonowska A, Moulin L., Bena G, Somda I, Brunel C, Tollenaere C. (2022). [The impact of the rice production system \(irrigated vs lowland\) on root-associated microbiome from farmer's fields in western Burkina Faso](#). *FEMS Microbiology Ecology*, 98(9), fiac085.
35. Rocca, JD, Yammine A, [Simonin M](#), Gibert JP. (2022). [Predation by protists influences the temperature response of microbial communities](#). *Frontiers in Microbiology*. doi: 10.3389/fmicb.2022.847964
34. [Simonin M.](#), Briand, M., Chesneau, G., Rochefort, A., Marais, C., Sarniguet, A., & Barret, M. (2022). [Seed microbiota revealed by a large-scale meta-analysis including 50 plant species](#). *New Phytologist*. doi: 10.1111/nph.18037 -> [Link to PDF](#)
33. *Masson AS, Vermeire ML, Leng V, [Simonin M](#), Tivet F, Nguyen Thi H, Brunel C, Suong M, Kuok F, Moulin L, Bellaïfio S. (2022). [Enrichment in biodiversity and maturation of the soil food web under conservation agriculture is associated with suppression of rice-parasitic nematodes](#). *Agriculture, Ecosystems and Environment*, 331, 107913
32. Mofini MT, Diedhiou AG, [Simonin M](#), Tchouomo D, Pignoly S, Ndiaye C, Min D , Vigouroux Y, Laplaze L, Kane A. (2022). Cultivated and Wild Pearl Millet Display Contrasting Patterns of Abundance and Co-occurrence in their root mycobiome. *Scientific Reports*, 12, 1639
31. § Jin L, Gerson JR, Rocca JD, Bernhardt ES, [Simonin M](#). (2022). [Alkaline mine drainage drives stream sediment microbial community structure and function](#). *Science of The Total Environment*, 805, 150189.
30. Rocca JD, Muscarella ME, Peralta AL, Isabel-Shen D, [Simonin M](#). (2021). [Guided by Microbes: Applying Community Coalescence Principles for Predictive Microbiome Engineering](#). *mSystems*, 6(4), e00538-21.
29. Rochefort A, [Simonin M](#), Marais C, Guillem-Erckelboudt AY, Barret M, Sarniguet A. (2021). [Transmission of Seed and Soil Microbiota to Seedling](#). *mSystems*, <https://doi.org/10.1128/mSystems.00446-21>
28. [Simonin M](#), Richaume A, Uzu G, Navel A, Dumay A, Martins JMF. (2021) [Very limited transport of TiO₂ and CuO nanoparticles in contrasted natural soils](#). *Science of the Total Environment*. 783, 146952
27. [Simonin M](#), Rocca JD, Gerson JR, Moore E, Brooks AC, Czaplicki L, Ross MRV, Fierer N, Craine JM, Bernhardt E.S. (2021) Consistent declines in aquatic biodiversity across diverse domains of life in rivers impacted by surface coal mining. *Ecological Applications*, 31 (6), e02389
- > See the associated [The Conversation article](#)
26. Graham EB, Averill C, Bond-Lamberty B, Knelman JE, Krause S, Peralta AL, ... [Simonin M](#), ...& Freund C. (2021). Towards a unifying framework of disturbance ecology through crowdsourced science. *Frontiers in Ecology and Evolution*. doi: 10.3389/fevo.2021.588940
25. Sehnal L, Brammer-Robbins E, Wormington A, Blaha L, Bisesi J, Larkin I, Martiniuk C, [Simonin M](#), & Adamovsky O. (2021). Microbiome composition and function in aquatic vertebrates: small organisms making big impacts on aquatic animal health. *Frontiers in Microbiology*, 12, 358.
24. *Perrotta B, [Simonin M](#), Back J, Anderson SM, Bergemann CM, Castellon B, Colman B, Matson C, Bernhardt ES, King R. (2020) Copper and Gold Nanoparticles Increase Nutrient Excretion Rates of Primary Consumers. *Environmental Science & Technology*
23. *Masson AS, Ho Bich, H, [Simonin M](#), Nguyen Thi H; Czernic P, Moulin L, Bellaïfio S. (2020). Deep modifications of the microbiome of rice roots infected by the parasitic nematode *Meloidogyne graminicola* in highly infested fields in Vietnam. *FEMS Microbiology Ecology*, 96, 7, fiia099
22. [Simonin M](#), Dasilva C, Terzi V, Ngonkeu ELM, Diouf D, Kane A, Bena G, Moulin L (2020). Influence of plant genotype and soil on the wheat rhizosphere microbiome: identification of a core microbiome across eight African and European soils. *FEMS Microbiology Ecology*, fiia067.
21. *Carley LN, *Panchagavi R, *Song X, *Davenport S, Bergemann CM, *McCumber AW, Gunsch CK, [Simonin M](#). (2020) Long-term effects of copper nanopesticides on soil and sediment community diversity in two outdoor mesocosm experiments. *Environmental Science & Technology*. 54 (14), 8878-8889. ***This paper was written as part of a student project in the IBEM graduate program at Duke University

20. de la Fuente Canto C, [Simonin M](#), King E, Moulin L, Bennett M, Castrillo G, Laplaze L (2020). An extended root phenotype: the rhizosphere, its formation and impacts on plant fitness. *The Plant Journal*, doi:10.1111/tpj.14781.
19. Gerson JR, Moore E, Naslund LC, Rocca JD, [Simonin M](#). (2020) Chemistry of streams draining mined and unmined watersheds in the mountaintop mined landscape of Central Appalachia, USA, *Ecology* e03093
18. Avellan A, [Simonin M](#), Anderson SM, Geitner NK, Bossa N, Spielman-Sun E, Bernhardt ES, Castellon BT, Colman BP, Cooper JL, Ho M, Hochella MF, Hsu-Kim H, Inoue S, King RS, Loughton SN, Matson CW, *Perrotta B, Richardson C, Unrine JM, Wiesner MR, Lowry GV. (2020). Differential Reactivity of Copper- and Gold-Based Nanomaterials Controls Their Seasonal Biogeochemical Cycling and Fate in a Freshwater Wetland Mesocosm. *Environmental Science and Technology*. 10.1021/acs.est.9b05097
17. Rocca JD, [Simonin M](#), Wright JP, Washburne A, Bernhardt ES. (2020). Rare Microbial Taxa Emerge When Communities Collide: Freshwater and Marine Microbiome Responses to Experimental Seawater Intrusion. *Ecology*, doi: 10.1002/ecy.2956
16. Geitner NK, Hendren, CO, et al, [Simonin, M...](#)& Wiesner M (2020). Harmonizing across environmental nanomaterial testing media for increased comparability of nanomaterial datasets. *Environmental Science: Nano*, 7, 13-36
15. [Simonin M](#), Voss KA, Hassett BA, Rocca JD, Wang SY, Bier RL, Violin CR, Wright JP, Bernhardt ES (2019). In search of microbial indicator taxa: shifts in stream bacterial communities along an urbanization gradient. *Environmental Microbiology*, doi: 10.1111/1462-2920.14694
14. *Brandt JE, [Simonin M](#), Di Giulio RT, Bernhardt ES (2019). [Beyond selenium: Coal combustion residuals lead to multi-element enrichment in receiving lake food webs.](#) *Environmental Science and Technology*, doi: 10.1021/acs.est.9b00324
13. Rocca JD, [Simonin M](#), Blaszczyk JR, Ernakovich JG, Gibbons SM, Midani FS, Washburne AD (2019). [The Microbiome Stress Project: towards a global meta-analysis of environmental stressors and their effects on microbial communities.](#) *Frontiers in Microbiology*, 9:3272. doi: 10.3389/fmicb.2018.03272
12. [Simonin M](#), Cantarel AAM, §Crouzet A, Gervais J, Martins JMF, Richaume A. [Negative effects of copper oxide nanoparticles on carbon and nitrogen cycle microbial activities in contrasting agricultural soils and in presence of plants.](#) *Frontiers in Microbiology*, 9:3102.doi: 10.3389/fmicb.2018.03102
11. Geitner NK, Cooper JR, Avellan A, Castellon BT, *Perrotta BG, Bossa N, [Simonin M](#), et al., Hsu-Kim H. [Size-Based Differential Transport, Uptake, and Mass Distribution of Ceria \(CeO₂\) Nanoparticles in Wetland Mesocosms.](#), *Environmental Science and Technology*. doi: 10.1021/acs.est.8b02040
10. Avellan A, [Simonin M](#), McGivney E, Bossa N, Spielman-Sun E, Rocca JD, Bernhardt ES, Geitner NK, Wiesner MR, Lowry GV (2018) Reconsidering the gold standard: evidence of gold nanoparticle biodissolution in freshwater environments., *Nature Nanotechnology*, <https://doi.org/10.1038/s41565-018-0231-y>
9. [Simonin M](#), Colman BP, Tang W, Judy JD, Anderson SM, Bergemann CM, Rocca JD, Unrine JM, Cassar N, Bernhardt ES, (2018) [Plant and microbial responses to repeated Cu\(OH\)₂ nanopesticide exposures under different fertilization levels in an agro-ecosystem.](#) *Frontiers in Microbiology*, 9:1769. doi: 10.3389/fmicb.2018.01769
8. [Simonin M](#), Colman BP, Anderson SM, King RS, *Ruis MT, Avellan A, Bergemann, CM, Perrotta BG, Geitner NK, Ho M. de la Barrera B, Richardson CJ, Wiesner MR, Bernhardt ES, (2018) [Engineered nanoparticles interact with nutrients to intensify eutrophication in a wetland ecosystem experiment.](#) *Ecological Applications*. <https://doi.org/10.1002/eap.1742>
7. [Simonin M](#), Nunan N, Bloor J, Pouteau V, Niboyet A, (2017) [Short-Term Responses And Resistance Of Soil Microbial Community Structure To Elevated CO₂ And N Addition In Grassland Mesocosms.](#) *Fems Microbiology Letters*, Doi: 10.1093/Femsle/Fnx077
6. [Simonin M](#), Martins JMF, Calas A, Uzu G, Richaume A, (2017) [Toxicity of TiO₂ nanoparticles on soil nitrification at environmentally relevant concentrations: Lack of classical dose-response relationships.](#) *Nanotoxicology*; doi: 10.1080/17435390.2017.1290845
5. [Simonin M](#), Richaume A, Dubost A, §Guyonnet JP, Martins JMF, Pommier T, (2016) [Titanium dioxide nanoparticles strongly impact soil microbial function by affecting archaeal nitrifiers.](#) *Scientific reports*, 6, 33643; doi: 10.1038/srep33643

4. [Simonin M, Martins JMF, Uzu G, Vince E, Richaume A, \(2016\) Combined study of titanium dioxide nanoparticle transport and toxicity on microbial nitrifying communities under single and repeated exposures in soil columns, *Environmental Science & Technology*, DOI: 10.1021/acs.est.6b02415](#)
3. [Simonin M, Le Roux X, Poly F, Lerondelle C, Hungate BA, Nunan N, Niboyet A, \(2015\) Coupling between and among ammonia oxidizers and nitrite oxidizers in grassland mesocosms submitted to elevated CO₂ and nitrogen supply. *Microbial Ecology*, DOI: 10.1007/s00248-015-0604-9](#)
2. [Simonin M, Richaume A, \(2015\) Impact of engineered nanoparticles on the activity, abundance and diversity of soil microbial communities: a review. *Environmental Science and Pollution Research*, DOI: 10.1007/s11356-015-4171-x](#)
1. [Simonin M, Guyonnet JP, Martins JMF, Ginot M, Richaume A, \(2015\). Influence of soil properties on the toxicity of TiO₂ nanoparticles on carbon mineralization and bacterial abundance. *Journal of Hazardous Material*, 283: 529-535](#)

· **20 Oral presentations** in international (16) and national conferences (4)

- **Journée Fronts de connaissances sur le microbiote des plantes (2021, Rennes)** : Seed microbiota revealed by a large-scale meta-analysis including 50 plant species
- **Ecological Society of America (2021, Virtual)**: Engineering Seed-Soil Microbiome Coalescence to Promote Plant Health
- **INRAE SPE Annual meeting (2021, Paris)**: Vers un pilotage du microbiote des graines pour améliorer la santé des plantes
- **SETAC Europe 30th Annual Meeting (2020, virtual)**: Long-term effects of copper nanopesticides on soil and sediment microbiome diversity in two outdoor mesocosm experiments.
- **SEB Annual Meeting (2019, Sevilla, Spain)**: Influence of wheat genotype and soil on the root-associated microbiome: Identification of a wheat core microbiome across African and European soils.
- **SETAC Europe 29th Annual Meeting (2019, Helsinki, Finland)**: Stressed microbiomes: effects of single and multiple stressors on the function and diversity of host-associated and free-living microbial communities.
- **EGU (2019, Vienna, Austria)**: Large shifts in riverine microbiomes exposed to mountain-top coal mining activities in Central Appalachia: regional and longitudinal assessments.
- **American Society for Microbiology - NC Branch Meeting (2018 Asheville, USA)**: The Microbiome Stress Project: towards a global meta-analysis of environmental stressors and their effects on microbial communities.
- **Ecotoxicomic - International Conference on Microbial Ecotoxicology (2017 Lyon, France)**: Novel nanopesticides introduce new challenges to microbes in agro-ecosystems and downstream wetlands.
- **Ecological Society of America Annual Meeting (2017 Portland, USA)**: “Novel nanopesticides introduce new challenges to microbes in agro-ecosystems and downstream wetlands”.
- **SFS (2017 Raleigh, USA)**: "The impact of gold nanoparticle on wetland ecosystem productivity is more than the sum of the parts”.
- **SETAC Europe 26th Annual Meeting (2016 Nantes, France)**: “Toxicity of TiO₂ nanoparticles on soil nitrification at environmentally relevant concentrations: Evidences for an absence of classical dose-response relationships”.
- **Ecological Society of America 100th Annual Meeting (2015 Baltimore, USA)**: “Effect of emerging contaminants on soil microbial functioning: Consequences of metal nanoparticles on N-cycling”.
- **SETAC Europe 25th Annual Meeting (2015 Barcelona, Spain)**: “Using Next-Generation Sequencing to explore the impact of Titanium dioxide nanoparticles on the functional microbial diversity involved in soil N cycle”.
- **Journées d'Ecotoxicologie microbienne, 5èmes journées thématiques de l'Association Francophone d'Ecologie Microbienne (AFEM) (2014 Banyuls sur mer, France)** : «Devenir des nanoparticules de dioxyde de titane (TiO₂) dans les sols et conséquences sur la biodiversité bactérienne ».
- **SETAC Europe 24th Annual Meeting (2014 Basel, Switzerland)**: “Combining physicochemistry and microbial ecotoxicology to assess the impact of TiO₂ nanoparticles in 6 agricultural soils”.
- **8th International Conference of the environmental effects of nanoparticles and nanomaterials (2013 Aix en Provence, France)**: “Do soil characteristics matter in ecological risk assessment of Titanium dioxide (TiO₂) nanoparticles?”

● Invited talks / seminars

- **INRAE Working group MultiStress (virtual, 2021):** Comprendre la réponse des microbiotes à des perturbations multiples: Utilisation d'un cadre conceptuel commun et de méta-analyses
- **Seminar PHIM Research Unit (Montpellier, 2021):** Seed microbiota revealed by a large-scale meta-analysis including 50 plant species
- **Seminar Sayfood Research Unit (virtual, 2021):** Méta-analyse globale sur le microbiote des graines: Méthodologie et présentation de la base de données basée sur le metabarcoding des marqueurs 16S, gyrB et ITS
- **Seminar Agroecology Research Unit (Dijon, 2020):** Le microbiote des semences, une composante négligée du phytobiome: Nouvelles perspectives à travers une méta-analyse et l'utilisation de communautés synthétiques
- **14ièmes Rencontres Plantes-Bactéries (Jan 2020 Aussois, France).** From Individual Studies to Generalizable Patterns in Plant Microbiome Research: How do we build a Scientific Consensus?
- **SEFA (2019, Lyon, France):** Approche Écosystémique Multi-Échelle et Science Ouverte pour l'Écotoxicologie.
- **IRD Dakar, Sénégal (Décembre 2017) :** "Impact de stress multiples sur l'activité et la structure des communautés microbiennes de sols agricoles et de milieux humides".
- **Baylor University, Departmental Seminar (April 2017):** "Interactive effects of nutrient pollution and nanomaterials on ecosystem functioning: Insights from wetland and terrestrial mesocosm experiments".
- **CEINT seminar - Duke University (March 2016):** "Titanium dioxide in agricultural soils: Fate, transport and impact on microbial functioning".
- **Webinar EcotoxicoMic – IRSTEA Lyon (December 2015):** "Dynamique, réactivité et écotoxicité des nanoparticules d'oxydes métalliques dans les sols: impact sur les fonctions et la diversité des communautés microbiennes".

● 8 Posters in international conferences

- **ISS Holobiont (2022, Lyon):** Seed microbiota revealed by a large-scale meta-analysis including 50 plant species
- **World Microbe Forum (2021, Virtual):** Seed microbiota revealed by a large-scale meta-analysis including 50 plant species
- **ISME 17th Meeting (2018 Leipzig, Germany):** "The Microbiome Stress Project: A collaborative endeavor to resolve the universal impacts of stressors on microbial community structure across a broad range of environments".
- **SETAC Europe 28th Annual Meeting (2018 Rome, Italy):** "Identifying bacterial indicator taxa along an urbanization gradient in stream ecosystems".
- **SETAC World Congress (2016 Orlando, USA):** "Eutrophication and Cu(OH)₂ nanopesticide interact to decrease wetland productivity and alter microbial function"
- **SETAC Europe 25th Annual Meeting (2015 Barcelona, Spain):** "Effect of multiple applications of TiO₂ nanoparticles on their transport and toxicity on microbial community in soil columns".
- **British Ecological Society / Société Française d'Ecologie Joint annual meeting (2014 Lille, France):** "[Disturbance of soil nitrogen cycle by titanium dioxide nanoparticles](#)".