



Dr Anne TREMIER

Date of Birth 08/09/1975

French

Married

3 children

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Work experience

Since 12/2017

Research director at Research unit OPAALE, **Irstea** Rennes, France.

01/2010 – 12/2017

Leader of the research team SAFIR at **Irstea** Rennes, France

09/2004 – 11/2017

Research engineer at Research unit OPAALE (formerly GERE), **Irstea** Rennes, France.

12/2000 – 04/2004

PhD ; Suez Environment ; Research unit GERE Cemagref Rennes, France

03/1999 – 11/2000

Project engineer; Cemagref Rennes and then **SITA** (Suez Environment group).

Education background

2015

French Habilitation to supervise research (HDR); University Rennes 1, France

"Understand and optimize a process in a recycling chain: application to organic waste composting"

2004

PhD in Environmental Biosciences; University of Provence (Aix Marseille I), France

"Modelling of a composting treatment - Development of experimental tools to study the process and design of the model";

1998

Chemical Engineer ; Ecole Nationale Supérieure de Chimie de Rennes (ENSCR), France

Speciality: Environmental process engineering

1995

Technical university degree in chemistry; University Institute of Technology, Rennes, France

Speciality: Chemical engineering

Professional training

2018

Research school: "Prospective and Interdisciplinary"

2016

Management Training: "Manager Coach" Module 2

2013

Management Training: "Manager Coach" Module 1

2011

Scientific training: "Experimental design – Statgraphics"

2005

Scientific training: "Uncertainty calculations"

Major research projects

2016 – 2021: Project DECISIVE (DECentralized management Scheme for Innovative Valorization of urban biowaste) – **European funding H2020 grant N°689229 – Coordinator**

2012 – 2015: Project ETYC (Integrated modelling of organic waste recycling) – National funding ADEME AAP REACTIF - Work package coordinator

2012: **Organization of International Conference ORBIT**, Rennes France

2010 – 2014: Project DIVA (Digestate valorization) – National funding ANR Bioénergies - Work package coordinator

2010 – 2012: Project MINIWASTE (Waste minimization) – European funding LIFE+ - Work package coordinator

2008-2012: Project ECCOVAL (Citizens involvement in Home composting development) – **Regional funding Bretagne AAP ASOSC – Coordinator**

2005-2008: Project ESPACE (influence of aeration mode and waste physical characteristics on composting performance) - **National funding: ANR PRECODD - Coordinator**

Organisational/Managerial skills

- **Research team leader** along 8 years: scientific management of 15 collaborators
- **Project coordination:** European project with 13 partners; management of the project organization; reporting to the European commission.
- **Congress organization:**
 - 2012 International scientific congress ORBIT2012; 260 attendees; management of the organization and scientific committees
 - 2018 National congress of RESMO network “Organic matter in all its states”; 110 attendees; participation to the organization and scientific committee

PhD supervision:

- Florent Hénon – 2008 – “Characterization and modelling of gas flows during real size composting - Application to process optimization”
- Cécile Teglia - 2011 – « Digestate valorization through composting treatment »
- Bijaya Adhikari - 2011 – « Onsite treatment of urban organic waste using home composting systems »
- Jérémy Denès – 2014 – « Integrated recycling of organic matter in agriculture: environmental optimization”
- Henry Fisgativa – 2016 – « Impact of an aerobic pretreatment on anaerobic digestion of food waste »
- Younes Bareha – 2018 – “Modelling the fate of nitrogen along anaerobic digestion”
- Matheus Vieira Firmino – PhD to begin in November 2019 – “Efficiency of co-composting biochar and digestate to reduce nitrogen emissions from organic waste recovery processes and produce fertilizers.”

Courses

- Course on Composting ; international Master BIWEM (Biomass and Waste for Energy and Materials - Ecole de Mines d’Albi France, (2017; 2018; 2019) ; international Master “Ecotechnologies for Sustainability and Environment Management” – Ecole Polytechnique Paris (2019)
- **Co-responsibility of Doctoral course Syst’MO:** Systemic approach of agronomic and environmental services offered by organic waste recycling (2018)
- Co-organiser of the Research school Syst’MO following the APIVALE congress (November 2019)

Memberships

- Member of the scientific committee of the international conference RAMIRAN
- Member of the scientific committee of the international conference WasteEng
- Associate Editor for Frontiers in Sustainable Food systems, specialty “Waste Management in Agro-ecosystems”
- Member of the scientific committee of Academic department “Environment and Agronomy” at INRA (French national research institute in Agronomy sciences)
- Member of the board of GIS APIVALE (research group on Integrated approach of organic waste valorization)

Publications

- BAREHA, Y., GIRAULT, R., GUEZEL, S., CHAKER, J., TRÉMIER, A. 2019 Modeling the fate of organic nitrogen during anaerobic digestion: Development of a bioaccessibility based ADM1. *Water Research*, pp. 298-315. DOI: 10.1016/j.watres.2019.02.011
- FISGATIVA, H., DEBLED, M., TREMIER, A., 2019. Performance of Coupling an Aerobic Pre-treatment Prior to a Solid-State Anaerobic Digestion of Food Waste. *Waste and Biomass Valorization*, In Press. DOI: 10.1007/s12649-019-00630-z
- DEGUEURCE, A., PICARD, S., PEU, P., TRÉMIER, A., 2019. Storage of Food Waste: Variations of Physical–Chemical Characteristics and Consequences on Biomethane Potential. *Waste and Biomass Valorization*, in Press.
- FISGATIVA, H., TREMIER, A., SAOUDI, M., LE ROUX, S., DABERT, P., 2018 Biochemical and microbial changes reveal how aerobic pre-treatment impacts anaerobic biodegradability of food waste. *Waste Management*, vol 80, p. 119-129.
- BAREHA, Y., GIRAULT, R., JIMENEZ, J., TREMIER, A., 2018 Characterization and prediction of organic nitrogen biodegradability during anaerobic digestion: A bioaccessibility approach. *Bioresource Technology*, vol 263, p. 425-436.
- FISGATIVA, H., MARCILHAC, C., GIRAULT, R., DAUMER, M.-L., TREMIER, A., DABERT, P., BÉLINE, F., 2018 Physico-chemical, biochemical and nutritional characterisation of 42 organic wastes and residues from France. *Data in Brief*, vol. 19, p. 1953-1962.
- FISGATIVA H., TREMIER A., LE ROUX S., BUREAU C., DABERT P., 2017 Understanding the anaerobic biodegradability of food waste: Relationship between the typological, biochemical and microbial characteristics. *Journal of Environmental Management*, vol 188, p. 95-107
- DEGUEURCE A., TREMIER A., PEU P., 2016 Dynamic effect of leachate recirculation on batch mode solid state anaerobic digestion: Influence of recirculated volume, leachate to substrate ratio and recirculation periodicity. *Bioresource technology*, vol 216, p. 553-561
- FISGATIVA H., TREMIER A., DABERT P., 2016 Characterizing the variability of food waste quality: A need for efficient valorisation through anaerobic digestion. *Waste Management*, vol 50, p. 274-284
- ASKRI, A., LAVILLE, P., TREMIER, A., HOUOT, S., 2016. Influence of Origin and Post-treatment on Greenhouse Gas Emissions After Anaerobic Digestate Application to Soil. *Waste and Biomass Valorization*, vol 7 (2), p. 293-306.
- DENES, J., TREMIER, A., MENASSERI-AUBRY S., WALTER, C., GRATTEAU, L., BARRINGTON, S. – 2015. Numerical simulation of organic waste aerobic biodegradation: a new way to correlate respiration kinetics and organic matter fractionation. *Waste Management*, vol. 36, p. 44-56
- ADHIKARI, B.K., TREMIER, A., BARRINGTON S., MARTINEZ, J. - 2013. Biodegradability of Municipal Organic Waste: A Respirometric Test. *Waste and Biomass Valorization*, vol. 4, n° 2, p. 331-340
- ADHIKARI, B.K., TREMIER, A., BARRINGTON, S., MARTINEZ, J., DAUMOIN, M. - 2013. Gas emissions as influenced by home composting system configuration. *Journal of Environmental Management*, vol. 116, p. 163-171

- DRUILHE C., BENOIST J. C., BODIN D. AND TREMIER A. - 2013. Development and validation of a device for the measurement of free air space and air permeability in solid waste. *Biosystems Engineering* , 115(4): 415-422
- RESSE, A., TREMIER, A. – 2013. Assessment of the impact of the quantity of biowaste composted in individual homes on the collected waste [Évaluation de l'impact des quantités compostées en habitat individuel sur les ordures ménagères collectées par la collectivité] *Techniques - Sciences - Methodes*, (9), pp. 50-58.
- ADHIKARI B. K., TRÉMIER A. AND BARRINGTON S. - 2012. Performance of five Montreal West Island home composters. *Environmental Technology (United Kingdom)*, 33(21): 2383-2393.
- HUET, J., DRUILHE, C., TREMIER, A., BENOIST, J.C., DEBENEST, G. - 2012. The impact of compaction, moisture content, particle size and type of bulking agent on initial physical properties of sludge-bulking agent mixtures before composting. *Bioresource Technology*, vol. 114, p. 428-436
- ADHIKARI, B.K., TREMIER, A., MARTINEZ, J., BARRINGTON, S. - 2012. Home composting of organic waste: Part. 1 Effect of home composter design. *International Journal of Environmental Technology and Management*, vol. 15, n° 3, 4, 5, 6, p. 417-437
- ADHIKARI, B.K., TREMIER, A., MARTINEZ, J., BARRINGTON, S. - 2012. Home composting of organic waste: Part. 2 Effect of management practices. *International Journal of Environmental Technology and Management*, vol. 15, n° 3, 4, 5, 6, p. 438-464
- TEGLIA, C., TREMIER, A., MARTEL, J.L. - 2011. Characterization of Solid Digestates: Part 2, Assessment of the Quality and Suitability for Composting of Six Digested Products. *Waste and Biomass Valorization*, vol. 211, n° 2, p. 113-126
- DUVAL, F.P., QUELLEC, S., TREMIER, A., DRUILHE, C., MARIETTE, F. - 2010. Non-destructive quantification of water gradient in sludge composting with Magnetic Resonance Imaging. *Waste Management*, vol. 30, n° 4, p. 610-619
- ADHIKARI, B., TREMIER, A., MARTINEZ, J., BARRINGTON, S. - 2010. Home and community composting for on-site treatment of urban organic waste : perspective for Europe and Canada. *Waste Management & Research*, vol. 28, n° 11, p. 1039-1053
- MOHAJER, A., TREMIER, A., BARRINGTON, S., TEGLIA, C. - 2010. Compost mixture influence of interactive physical parameters on microbial kinetics and substrate fractionation. *Waste Management*, vol. 30, n° 8-9, p. 1464-1471
- TEGLIA, C., TREMIER, A., MARTEL, J.L. - 2010. Characterization of Solid Digestates: Part 1, Review of Existing Indicators to Assess Solid Digestates Agricultural Use. *Waste and Biomass Valorization*, vol. 2, n° 1, p. 43-58
- TREMIER, A., TEGLIA, C., BARRINGTON, S. - 2009. Effect of initial physical characteristics on sludge compost performance. *Bioresource Technology*, vol. 100, n° 15, p. 3751-3758
- MOHAJER, A., TREMIER, A., BARRINGTON, S., MARTINEZ, J., TEGLIA, C., CARONE, M. - 2009. Microbial oxygen uptake in sludge as influenced by compost physical parameters . *Waste Management*, vol. 29, n° 8, p. 2257-2267
- HENON, F., TREMIER, A., DEBENEST, G., MARTEL, J.L., QUINTARD, M. - 2009. A method to characterize the influence of air distribution on the composting treatment: monitoring of the thermal fields . *Global NEST Journal*, vol. 11, n° 2, p. 172-180
- TREMIER, A., DE GUARDIA, A., MALLARD, P. Index of organic matter stabilisation during composting and index of compost stability: A critical review [Indicateurs de stabilisation de la matière organique au cours du compostage et indicateurs de stabilité des composts: Analyse critique et perspectives d'usage] (2007) *Techniques - Sciences - Methodes*, (10), pp. 105-129.
- DRUILHE, C., DE GUARDIA, A., BERTHE, L., TREMIER, A., MARTEL, J.-L. Measurement by respirometry of organic wastes and composts biodegradability. Operational applications [Mesure de la biodégradabilité des déchets et des composts par respirométrie. Applications opérationnelles] (2007) *Techniques - Sciences - Methodes*, (5), pp. 44-57.
- MARTEL, J.-L., HUYARD, A., ALLAIN, M., TREMIER, A. – 2007. Application of the new respirometric test Biodec to different organic waste mixtures to be composted [Application du nouveau test

respirométrie «Biodec» à différents mélanges de déchets organiques à composter] Techniques - Sciences - Methodes, (5), pp. 58-66.

- BERTHE, L., DRUILHE, C., MASSIANI, C., TREMIER, A., DE GUARDIA, A. - 2007. Coupling a respirometer and a pycnometer, to study the biodegradability of solid organic wastes during composting. Biosystems engineering, vol. 97, n° 1, p. 75 - 88
- TREMIER, A., DE GUARDIA, A., MASSIANI, C., PAUL, E., MARTEL, J.L. - 2005. A respirometric method for characterising the organic composition and biodegradation kinetics and the temperature influence on the biodegradation kinetics, or a mixture of sludge and bulking agent to be co-composted. Bioresource technology, vol. 96, n° 2, spécial RAMIRAN'02, p. 169 - 180

