ResearchGate

Céline JACQUIN

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Current position

Position	Institute	Supervisors	Year
Group leader tenure-track researcher	**Eawag** (Swiss Federal Institute of Aquatic Science and Technology), **Process Engineering department** (ENG)		01-06 to present
Post-doc researcher	Eawag (Swiss Federal Institute of Aquatic Science and Technology)	Timothy R. Julian Eberhard Morgenroth	2018 to 31.03.21

Career highlights

Competence	Experience
Research	• Developed **fluorescence spectroscopy methods** to characterize the dissolved organic matter (DOM) during wastewater treatment and membrane filtration. • Designed and tested **nanotechnology filters for virus removal** in drinking water. • Wrote **funded application for Anakom** (Eawag discretionary fund for equipment) to follow independent research line with Prof. Dr. Eberhard Morgenroth on fluorescent DOM real-time monitoring during greywater treatment.
Collaborations with companies	• Currently leading a project in collaboration with **inge DuPont** to optimize gravity-driven membrane filtration with hollow fiber membranes as a reverse osmosis (RO) pretreatment at in centralized water treatment systems. • Started a collaboration with **Aquaporin** to use their Aquaporin membranes for greywater reuse. • Started a collaboration with **Horiba** to develop fluorescence spectrometry real-time monitoring.
Knowledge dissemination	• **Published 5 peer-reviewed papers** as first author from the PhD and **published 2 peer-reviewed papers** (first and second author) from the Post-doc. • Participated in **5 national and international conferences**.
Teaching and supervision	• Worked as a **lab assistant** in water chemistry (192 h, M.Sc., Université de Montpellier), in process engineering (68 h, M.Sc., ETH and B.Sc., Université de Montpellier) and environmental microbiology (42 h, B.Sc., ETH). • Supervised **7 master theses and master projects**.
Organization and languages	• Organizes and moderates **weekly Montagsseminar (SWW/ENG)** since February 2019. • Organizes **punctual "Filtration meeting"** to maintain a community around filtration processes in ENG department since September 2018. • **French** (mother tongue), **English** (C1), **Spanish** (C1), **German** (A2 – in progress), **Italian** (B1).
Awards and prizes	• Prize **Jean NEEL** for the best PhD 2017, attributed by the Club Français des Membranes in 2020. • **Second prize for the best student presentation** at the 5th IWA Regional Conference on Membrane Technology 2016; August 22–24, 2016; Kunming, China.

Academic education

Title, Institute	Dissertation title, skills	Supervisors	Received
Ph.D. in process engineering Institut Européen des Membranes (Université de Montpellier)	**Optimized fouling control in membrane bioreactors (MBR) by characterizing DOM and its interactions during membrane separation.** • Performed membrane fouling tests at lab-scale. • Developed DOM fluorescence indicators. • Operated and designed lab-scale MBR. • Led three collaborations with other institutes.	Marc Héran Geoffroy Lesage	2017
M.Sc. in Water Sciences Engineering Polytech'Montpellier (Université de Montpellier)	**Effect of a constructed wetland on the physico-chemical parameters of a wastewater treatment plant effluent.**	Marc Héran Benoit Chancerel (PhytoSerpe company)	2014

Peer-reviewed publications

Year	Reference
2020	Domagala, K.W., **Jacquin, C.**, Borlaf, M., Sinnet, B., Julian., T.R., Kata, D., Graule., T. Efficiency and stability evaluation of Cu_2O/ MWCNTs filters for virus removal from drinking water. ***Water Res.*** 179, 115879. https://doi.org/10.1016/j.watres.2020.115879 **Jacquin, C.**, Yu, D., Sander, M., Domagala, K.W., Traber, J., Morgenroth, E., Julian, T.R., 2020. Competitive co-adsorption of bacteriophage MS2 and natural organic matter onto multiwalled carbon nanotubes. **Water Res. X**. 9, 100058. https://doi.org/10.1016/j.wroa.2020.100058
2019	Maghsoodi, M.*, **Jacquin, C.***, Teychene, B., Heran, M., Tarabara, V.V., Lesage, G., Snow, S.D., 2019. Emerging investigator series: photocatalysis for MBR effluent post-treatment: assessing the effects of effluent organic matter characteristics. ***Environ. Sci. Water Res. Technol***. 5, 482–494. https://doi.org/ 10.1039/C8EW00734A.
2018	**Jacquin, C.**, Monnot, M., Hamza, R., Kouadio, Y., Zaviska, F., Merle, T., Lesage, G., Héran, M., 2018. Link between dissolved organic matter transformation and process performance in a membrane bioreactor for urinary nitrogen stabilization. ***Environ. Sci. Water Res. Technol***. 4, 806–819. https://doi.org/10.1039/C8EW00029H. **Jacquin, C.**, Teychene, B., Lemee, L., Lesage, G., Heran, M., 2018. Characteristics and fouling behaviors of Dissolved Organic Matter fractions in a full-scale submerged membrane bioreactor for municipal wastewater treatment. ***Biochem. Eng. J***. 132, 169–181. https://doi.org/10.1016/j.bej.2017.12.016. **Jacquin, C.**, Gambier, N., Lesage, G., Heran, M., 2018. New insight into fate and fouling behavior of bulk Dissolved Organic Matter (DOM) in a full-scale membrane bioreactor for domestic wastewater treatment. ***J. Water Process Eng***. 22, 94–102. https://doi.org/10.1016/j.jwpe.2018.01.014.
2017	**Jacquin, C.**, Lesage, G., Traber, J., Pronk, W., Heran, M., 2017. Three-dimensional excitation and emission matrix fluorescence (3DEEM) for quick and pseudo-quantitative determination of protein- and humic-like substances in full-scale membrane bioreactor (MBR). ***Water Res.*** 118, 82–92. https://doi.org/10.1016/j.watres.2017.04.009.

Conferences – Oral presentations

Year	Reference
2019	**Jacquin, C.**, Maghsoodi, M., Teychene, B., Heran, M., Tarabara, V.V., Leasage, G., Snow, S.D. Photocatalysis for MBR Post-Treatment: Effect of membrane state on Effluent Organic Matter quenching. ***9th IWA Membrane Technology Conference***; June 23–27, 2019; Toulouse, France. **Jacquin, C.**, Domagala, K., Traber, J., Julian, T.R., Morgenroth, E., Graule, T. Safe drinking water in water kiosks: effect of NOM on virus removal by MultiWalled Carbon NanoTubes (MWCNT). ***12th European Congress of Chemical Engineering***; September 15–19, 2019; Florence, Italy.
2016	**Jacquin, C.**, Teychene, B., Lesage, G., M. Heran. Fractionnement de la matière organique dissoute du surnageant de BàM : Une perspective de compréhension des mécanismes de colmatage. ***11ème congrès international du GRUTTEE 2016***; October 11–13 2016; Poitiers, France. **Jacquin, C.**, Teychene, B., Lesage, G., Heran, M. How to tune dissolved organic matter characterization to understand membrane fouling in MBR processes. ***5th IWA Regional Conference on Membrane Technology 2016***; August 22–24, 2016; Kunming, China. → **Second prize for the best student presentation**.
2015	**Jacquin, C.,** Lesage, G., Heran, M. How to tune effluent organic matter identification and characterization to enhance activated sludge filtration and minimize membrane fouling. ***10th European Congress of Chemical Engineering***; September 27–October 1, 2015; Nice, France.

Conferences - Posters

Year	Reference
2019	**Jacquin, C.**, Domagala, K.W, Traber, J., Julian, T.R., Morgenroth, E., Graule, T. Is virus removal with multiwalled carbon nanotubes possible in presence of natural organic matter? ***9th IWA Membrane Technology Conference;*** June23–27, 2019; Toulouse, France.
2018	Lesage, G., **Jacquin, C.**, Heran, M. 3DEEM Fluorescence spectroscopy for on-line membrane reactor fouling control. ***Euromembrane 2018***; July 9–13, 2018; Valencia, Spain.
2017	**Jacquin, C.**, Lesage, G., Traber, J., Pronk, W., Heran, M. 3DEEM fluorescence for quick and pseudo-quantitative determination of DOM in full-scale MBR. ***International Congress on Membranes and Membrane Processes 2017***; July 29–August 4, 2017; San Francisco, United States. **Jacquin, C.**, Lesage, G., Teychene, B., Lemee, L., Heran, M. Fractionation and fouling behavior of DOM from full-scale submerged MBR. ***International Congress on Membranes and Membrane Processes 2017***; July 29–August 4, 2017; San Francisco, United States.

Student supervision

Level	University	Student name	Subject	Year
PhD	ETH Zurich	Yongmin Hu	Fluo-detect: Fluorescence spectroscopy for the real-time monitoring of a wide range of water contaminants	2021-2026
M.Sc	EPFL	Marisa Boller	Improvement of gravity-driven membrane filtration with inge DuPont hollow fiber membranes performance and understanding of biofilm distribution along the fiber	2022
M.Sc	ETH Zurich	Yongmin Yu	Real-time monitoring of water quality during wastewater treatment using fluorescence spectrometry	2021
Research Assistant	-	Deborah Stoffel	Optimization of inge DuPont gravity-driven hollow fiber membranes as a RO pretreatment and investigation of potentiality of membrane second life use.	2020-2021
M.Sc	ETH Zurich	Deborah Stoffel	Optimization of inge DuPont gravity-driven hollow fiber membranes as a RO pretreatment and investigation of potentiality of membrane second-life use.	2020
M.Sc	ETH Zurich	Elvira Rigo	inge BASF gravity-driven hollow fiber membranes as a RO pretreatment.	2019
M.Sc	ETH Zurich	Diya Yu	Investigation of virus removal by multiwalled carbon nanotubes for drinking water application.	2018
M.Sc	2iE Ouagadougou	Razina Hamza	DOM and membrane fouling characterization during the operation of a membrane bioreactor treating urine.	2017
M.Sc	Polytech' Montpellier	Julien Petit	DOM monitoring with fluorescence spectroscopy during membrane filtration.	2016
M.Sc	Polytech' Montpellier	Céline Khuu	Fractionation by size and hydrophobicity of the DOM extracted from membrane bioreactor activated sludge.	2016
B.Sc	IUT Chimie Montpellier	Lucie Sanchez	Activated sludge DOM fractionation, characterization and filtration to understand membrane fouling phenomena during membrane bioreactor operation.	2015
M.Sc	ENGEES Strasbourg	Noémie Gambier	DOM characterization and biomass quantification in a membrane bioreactor: case study of La Grande-Motte.	2015

Teaching experience

University, Level	Cursus name	Subject area, supervised subjects	Hours
Polytech'Montpellier, M.Sc	Water Sciences Engineering	Water chemistry laboratory • River water physico-chemical quality monitoring • Wastewater pollutant load measurement • Chlorine demand determination	192
Université de Montpellier, B.Sc	Geosciences, Pollution Prevention and Control	Water purification and treatment laboratory • Coagulation/Flocculation • Decantation • Sand filtration • Treatment by activated sludge	24
ETH Zurich, M.Sc	Urban Water Management	Environment and Computer laboratory • Operation of a lab-scale sequenced batch reactor • Water quality analysis and mass balance	44
ETH Zurich, M.Sc	Environmental Sciences	Basic Practical in Microbiology • E.coli and virus detection with several techniques • Drinking water treatments efficiency evaluation	42