

Annex IV

CV of the Candidate

- **Personal details:**

- Full name: Satoshi Izumoto
- Date of birth: May 1st 1990
- email: satoshi.izumoto@hotmail.co.jp
- phone: +33 777838083

- **Education and professional experience:**

01/09/2022 – now: PostDoc, Institute of Physics in Rennes, University of Rennes 1, France

Discrete media unit

Topic: Microfluidic experiments for chemical reaction in porous media

Supervisor: Dr. Herve Tabuteau

01/09/2021 – 30/04/2022: PostDoc, Université Libre de Bruxelles, Belgium

Nonlinear physical chemistry unit

Topic: Oscillating reaction in saddle flow

Supervisor: Professor Anne de Wit, Co-supervisor: Professor Tanguy Le Borgne

01/04/2021 – 31/07/2021: PostDoc, University of Rennes 1, France

Geosciences Rennes

Topic: Reactive transport in porous media in hyperbolic flow and co-flow

Supervisor: Dr. Joris Heyman

15/07/2020 – 31/03/2021: Research Engineer (before obtaining PhD), University of Rennes 1, France

Geosciences Rennes

Topic: Spectral induced polarization of bacteria in microfluidics

Supervisor: Professor Tanguy Le Borgne

01/07/2017 – 30/06/2021: Ph.D, University of Stuttgart, Germany (defended on 12/02/2021 with Summa Cum Laude)

Faculty of Civil and Environmental Engineering

Thesis title: Spectral induced polarization of calcite precipitation in porous media

Supervisor: Professor Johan Alexander Huisman, Co-supervisor: Professor Tanguy Le Borgne

01/04/2014 – 31/3/2017: Master of Science, University of Tokyo, Japan

Graduate School of Agricultural and Life Sciences

Thesis title: Methane transport in landfill cover soils during precipitation

Supervisor: Professor Taku Nishimura, Co-supervisor: Professor Shoichiro Hamamoto

01/04/2012 – 31/3/2014: Undergraduate student (third and fourth years). University of Tokyo, Japan

Faculty of Agriculture

Thesis title: Measuring water conductivity and thermal properties of unsaturated soils

01/04/2010 – 31/3/2012: Undergraduate student (first and second years), University of Tokyo, Japan,

Natural Sciences II

- **Awards/Grant/Invited talk**

- Keynote speaker in 1st conference of Hydrogeophysics in Near Surface Geoscience Conference & Exhibition 2021 held by European Association of Geoscientists and Engineers (31/07/2021)
Title: Improved understanding of the spectral induced polarization response of reactive transport through millifluidic experiments

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- Invited talk in 59th Workshop of Soil physics group in The Japanese society of irrigation, drainage and rural engineering (31/10/2020)
Title: Spectral induced polarization of calcite precipitation in porous media
 - Outstanding Student Presentation Award at JpGU-AGU Joint Meeting 2017
Title: Gas and water transport in landfill final cover soils during precipitation
 - Research grant for young researchers 2016-17, The Japanese Society of Irrigation, Drainage and Rural Engineering
Title: Gas movement in soils during precipitation
 - Best Poster Award, 2016 Japan Society of Material Cycles and Waste Management Kanto Branch Meeting (3/20)
Title: Water and gas movement in landfill final cover soils during precipitation
- **Teaching/administration experiences**
 - Lector in experimental course in 5th Cargèse Summer School. Course Name "Reactive transport" August 2021
 - Teaching Assistant in University of Tokyo. Course Name "First-Year Seminar for Natural Sciences Students" April-July 2017
 - 2016 University of Tokyo Scientific Networking Program Board Member
I worked for three seminars. I was fully responsible for one of them. In that seminar I invited Dr. Behzad Ghanbarian, who is working in University of Texas at Austin.
 - Teaching Assistant in University of Tokyo. Course Name "Laboratory work on Soil Physics" April – July 2014
- **Publications in international peer-reviewed journals:**
 1. **Satoshi Izumoto**, Shoichiro Hamamoto, Ken Kawamoto, Masanao Nagamori, and Taku Nishimura (2019a), Methane eruptions from landfill final cover soil during rainfall events in laboratory experiments, *Soils and Foundations*, 59(4), pp.1052-1062 doi: 10.1016/j.sandf.2019.05.002
 2. **Satoshi Izumoto**, Johan Alexander Huisman, Yuxin Wu and Harry Vereecken (2019b), Effect of solute concentration on the spectral induced polarization response of calcite precipitation, *Geophysical Journal International*, 220, pp.1187-1196 doi: 10.1093/gji/ggz515
 3. **Satoshi Izumoto**, Shoichiro Hamamoto, Ken Kawamoto, Masanao Nagamori, and Taku Nishimura (2018) Monitoring of methane emission from a landfill site in daily and hourly time scales using an automated gas sampling system, *Environmental Science and Pollution Research*, 25(24), pp.24500-24506 doi:10.1007/s11356-018-2671-1
 4. **Satoshi Izumoto**, Johan Alexander Huisman, Egon Zimmermann, Joris Heyman, Francesco Gomez, Herve Tabuteau, Romain Laniel, Harry Vereecken, Yves Méheust and Tanguy Le Borgne (2022), Pore-Scale Mechanisms for Spectral Induced Polarization of Calcite Precipitation Inferred from Geo-Electrical Millifluidics, *Environmental Science and Technology*, 56, pp.4998-5008 doi: 10.1021/acs.est.1c07742
 5. **Satoshi Izumoto**, Johan Alexander Huisman, Egon Zimmermann, Joris Heyman, Francesco Gomez, Herve Tabuteau, Romain Laniel, Harry Vereecken, Yves Méheust and Tanguy Le Borgne (2021) Improved understanding of the spectral induced polarization response of reactive transport through millifluidic experiments, *Near Surface Geoscience Conference & Exhibition 2021. Bordeaux*, pp.1-5 doi:10.3997/2214-4609.202120166 (Keynote speaker, conference proceeding)
- **Papers submitted and in preparation:**
 - **Satoshi Izumoto**, Induced polarization of metal grains: simulation of three-dimensional electric field (submitted)
 - **Satoshi Izumoto**, Joris Heyman, Johan Alexander Huisman, Kevin de Vriendt, Cyprien Soullaine, Francesco Gomez, Herve Tabuteau, Yves Méheust and Tanguy Le Borgne, Enhanced mixing and reaction at fluid stagnation points: theory and pore scale imaging (submitted)
 - Gauthier Rousseau*, **Satoshi Izumoto***, Tanguy Le Borgne and Joris Heyman, Effect of Local Dispersion on Mixing in Non-uniform Flows (in prep.)

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- Gauthier Rousseau, **Satoshi Izumoto**, Tanguy Le Borgne and Joris Heyman, Mixing front in hyporheic zone (in prep.)
- **Satoshi Izumoto**, Gauthier Rousseau, Tanguy Le Borgne and Joris Heyman, Impact of pore-scale chaotic mixing on Darcy-scale reaction rates (in prep.)
- **Satoshi Izumoto**, Dario M. Escala, Joris Heyman, Tanguy Le Borgne and Anne De Wit, Mixing and reaction in A+B->Oscillator system: experimental study of compression-controlled localized chemical waves (in prep.)
- **Satoshi Izumoto**, Dario M. Escala, Joris Heyman, Tanguy Le Borgne and Anne De Wit, Chemical wave in stagnation point flow: formation of pinned plane-wave packets (in prep.)
- **Satoshi Izumoto**, Oscillating reaction in porous media under saddle flow (in prep.)

• Presentations in conferences

- **Satoshi Izumoto**, J. A. Huisman, E. Zimmermann, J. Heyman, F. Gomez, H. Tabuteau, R. Laniel, H. Vereecken, Y. Méheust and T. Le Borgne (2019) Improved understanding of the spectral induced polarization response of reactive transport through millifluidic experiments. Near Surface Geoscience Conference & Exhibition 2021. Bordeaux
- **Satoshi Izumoto**, J. A. Huisman, E. Zimmermann, Y. Méheust, F. Gomez, J. Heyman, R. Laniel, H. Vereecken and T. Le Borgne (2019) Spectral induced polarization of calcite precipitation in a 2D porous medium. American Geophysical Union Fall Meeting. Washington, D.C. (oral)
- **Satoshi Izumoto**, J. A. Huisman, E. Zimmermann (2019) Spectral induced polarization of calcite precipitation. 5th National Workshop "Induced Polarization" of the IP Working Group of the German Geophysical Society. Hannover, Germany (oral)
- **Satoshi Izumoto**, J. A. Huisman, E. Zimmermann, O. Esser, F. -H Haegel and H. Vereecken (2018) Effects of solution composition on the spectral induced polarization signals of calcite precipitation. 4th Cargèse Summer School. Cargèse, Corsica (poster)
- **Satoshi Izumoto**, Johan Alexander Huisman, Egon Zimmermann, Yves Méheust, Francesco Gomez, Joris Heyman, Yuxin Wu, Harry Vereecken, and Tanguy Le Borgne (2018) Spectral induced polarization of calcite precipitation in a porous media. American Geophysical Union Fall Meeting. Washington, D.C. (poster)
- **Satoshi Izumoto**, Johan Alexander Huisman, Egon Zimmermann, Odilia Esser, Franz -Hubert Haegel, Harry Vereecken (2018) Spectral induced polarization response of calcite precipitation. 5th International Workshop on Induced Polarization. Rutgers University, New York (poster)
- **Satoshi Izumoto**, Shoichiro Hamamoto, Hiromi Imoto, Ken Kawamoto, Masanao Nagamori, Taku Nishimura (2017) Gas and water transport in landfill final cover soils during precipitation. JpGU-AGU Joint Meeting 2017. Makuhari, Japan (poster)
- **Satoshi Izumoto**, Shoichiro Hamamoto, Hiromi Imoto, Ken Kawamoto, Masanao Nagamori, Taku Nishimura (2016) Soil air pressure change and methane eruption from soil caused by infiltration during a rainfall event. Japan Society of Material Cycles and Waste Management Kanto Branch Meeting. Ota, Japan (poster)
- **Satoshi Izumoto**, Shoichiro Hamamoto, Hiromi Imoto, Ken Kawamoto, Taku Nishimura (2016) Soil air pressure change and methane eruption from soil caused by infiltration during a rainfall event. The Japanese Society of Irrigation, Drainage and Rural Engineering Annual Meeting. Sendai, Japan (oral)
- **Satoshi Izumoto**, Shoichiro Hamamoto, Hiromi Imoto, Ken Kawamoto, Taku Nishimura (2016) Methane transport in landfill final cover soils during precipitation. Japan Society of Material Cycles and Waste Management Spring Meeting. Kawasaki, Japan (poster)
- **Satoshi Izumoto**, Shoichiro Hamamoto, Hiromi Imoto, Ken Kawamoto, Taku Nishimura (2016) Methane transport in landfill final cover soils during precipitation. Japan Geoscience Union Meeting. Makuhari, Japan (poster)