

LIU-DI LU

7-9 Rue du Conseil-Général, 75005, Genève, Suisse

RESEARCH INTERESTS

My Ph.D research is principally devoted to modeling, control and optimisation of the industrial algal raceway ponds. Meanwhile, I also work on Model Order Reduction applied on PDE problems. Recently, I start to work on Domain Decomposition problem and Parallel space time methods.

WORK EXPERIENCE

Post-doc contract University of Geneva, Geneva	October 2021 - present
Monitor contract Sorbonne University, Paris 192h teaching duty	October 2018 - September 2021
Doctoral contract Sorbonne University, Paris Modelization and Optimisation for coupling hydrodynamics-photosynthesis systems	October 2018 - September 2021
Research Internship Inria Paris team ANGE Model Reduction for Burgers' equation	March 2018 - September 2018

EDUCATION

Laboratory Jacques-Louis Lions, Sorbonne University, Paris, France Ph.D thesis under the supervision of Julien Salomon, Jacques Sainte-Marie (INRIA Paris team ANGE) and Olivier Bernard (INRIA Sophia Antipolis team BIOCORE)	2018 - 2021
Sorbonne University, Paris, France Master degree in Mathematics and Applications	2016 - 2018
University Claude Bernard Lyon 1, Lyon, France Bachelor degree in Mathematics	2015 - 2016
University Savoie Mont Blanc, Chambéry, France First and second year of Bachelor in Mathematics	2013 - 2015

PREPRINTS

- Shape optimization of a microalgal raceway to enhance productivity*, with Olivier Bernard, Jacques Sainte-Marie and Julien Salomon, submitted, 2020
- Optimization of mixing strategy in microalgal raceway ponds*, with Olivier Bernard and Julien Salomon, submitted, 2021
- Optimal optical conditions for Microalgal production in photobioreactors*, with Olivier Bernard, submitted, 2021
- Theoretical growth rate of microalgae under high/low-flashing light*, with Olivier Bernard and J. Ignacio Fierro U., submitted, 2021

PROCEEDINGS

- Mixing Strategies Combined with Shape Design to Enhance Productivity of a Raceway Pond*, with Olivier Bernard and Julien Salomon, published in 11th IFAC SYMPOSIUM on Advanced Control of Chemical Processes, 2021
- Optimizing microalgal productivity in raceway ponds through a controlled mixing device*, with Olivier Bernard and Julien Salomon, published in 2021 American Control Conference, 2021

Controlling the bottom topography of a microalgal pond to optimize productivity, with Olivier Bernard and Julien Salomon, published in 2021 American Control Conference, 2021

TALKS

Geneva, November 2, 2021	<i>Microalgal raceway ponds modelling and optimization problems</i> University of Geneva, Mathematics Section, Numerical Analysis Seminar
Venice, June 13, 2021	<i>Mixing Strategies Combined with Shape Design to Enhance Productivity of a Raceway Pond</i> 11th IFAC SYMPOSIUM on Advanced Control of Chemical Processes 2021
Sophia Antipolis, June 3, 2021	<i>Some optimization problems in an algal raceway pond</i> Inria Sophia Antipolis, Seminar of team BIOCORE
Online, May 28, 2021	<i>Shape design combining with a mixing device in an algal raceway pond</i> 8th EGRIN school
New Orleans, May 25, 2021	<i>Optimizing microalgal productivity in raceway ponds through a controlled mixing device</i> 2021 American Control Conference
New Orleans, May 25, 2021	<i>Controlling the bottom topography of a microalgal pond to optimize productivity</i> 2021 American Control Conference
Toulouse, May 18, 2021	<i>Some optimization problems in an algal raceway pond</i> Institut de Mathématiques de Toulouse, Seminar Modelisation, Analysis and Calcul
Online, December 3, 2020	<i>Optimization problem for a microalgal raceway pond to enhance productivity</i> CAN-J 2020 (seminar of numerical analysis organized by SMAI)
Paris, November 4, 2020	<i>Optimization problems of a microalgal raceway to enhance productivity</i> Inria Paris, Seminar of team ANGE
Paris, May 28, 2019	<i>Réduction de modèle pour l'équation de Burgers</i> Ph.D seminar of Laboratory Jacques-Louis Lions
Paris, December 12, 2018	<i>Model Reduction for hyperbolic Equations</i> Inria Paris, Seminar of team ANGE

TEACHING

University of Geneva	
2021-2022	Analyse II - Analyse Réelle
Sorbonne University	
2019-2020	1MA001 Mathématiques pour les Sciences 1 DU Retour aux Etudes Supérieures pour les Personnes Exilées
2018-2019	1M001 Analyse et algèbre pour les sciences 3M236 Méthodes numériques pour les équations différentielles DU Retour aux Etudes Supérieures pour les Personnes Exilées

SKILLS

Computer Skills	MATLAB, Python, Git, HTML, CSS
Languages	Chinese, French, English