LIU-DI LU

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RESEARCH INTERESTS

My 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.

WORK EXPERIENCE

Monitor contract October 2018 - September 2021
Sorbonne University, Paris
192h teaching duty

Doctoral contract October 2018 - September 2021
Sorbonne University, Paris
Modelization and Optimisation for coupling hydrodynamics-photosynthesis systems

Research Internship March 2018 - September 2018
Inria Paris team ANGE
Model Reduction for Burgers' equation

EDUCATION

Laboratory Jacques-Louis Lions, Sorbonne University, Paris, France 2018 - 2021
Ph.D thesis under the supervision of Julien Salomon, Jacques Sainte-Marie (INRIA Paris team ANGE) and Olivier Bernard (INRIA Sophia Antipolis team BIOCORE)

Sorbonne University, Paris, France 2016 - 2018
Master degree in Mathematics and Applications

University Claude Bernard Lyon 1, Lyon, France 2015 - 2016
Bachelor degree in Mathematics

University Savoie Mont Blanc, Chambery, France 2013 - 2015
First and second year of Bachelor in Mathematics

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

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

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

TEACHING

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