

# AHMAD HUSSEIN BADR

09/06/1999

## PHD :

LABORATOIRE ONDE ET MATIERE AQUITAINE (LOMA) • SUPERVISORS : FRANÇOISE ARGOUL, ANTOINE ALLARD

My research consists in exploring *Chlamydomonas Reinhardtii*'s swimming strategies under presence of light and mechanical cues, and in studying its phototaxis in different types of environments (confined space, partially lit environments, in dispersed light, ...)

## Keywords:

Microfluidics, Confinement, Phototaxis, Photosynthesis, Micro-alga, Active swimmer, *Chlamydomonas Reinhardtii*, Optics, BioPhysics

## FORMATIONS

2023-2024

**Master 2 : Systèmes Biologiques et Concepts Physiques / Biological systems and Physics Concepts**

Advanced Physics course for Biologists  
Sorbonne Université, Paris

2022-2023

**Master 1 : Interface Biology Physics**

Sorbonne Université, Paris

2021-2022

**3rd Year of Molecular Biology with Biopharmaceutical Sciences (Ireland)**

Erasmus Exchange in the Waterford Institute of Technology, Waterford, Ireland

2019-2021

**Licence Biologie-Santé International / 1st and 2nd year of Bachelor Degree in International Biology-Health studies**

Université Paris Est Créteil

2017-2019

**Première Année Commune aux Études de Santé (Paces) / First year of medicine studies**

Université Paris Est Créteil

## SKILLS

### Languages

**English**– Fluent **C1** / **German**– Intermediary **B2** / **Arabic** – Basic / **Japanese**– Beginner / **Irish**– Beginner

### Scientific skills

Laboratory work in the bio-physics field, such as:

Microfluidics ; Microscopy and image study (super-resolution, SPT/MTT) ; Inoculation and growth analysis of different Micro-organisms ; DNA extraction and PCR using methods (creation of tagged proteins, sequencing, ...) ; Qualitative and quantitative tests (Elisa tests, immunodiffusion, ...) ; Bio-technologic studies (studies of an enzyme efficiency, affinity)

### Informatic Skills

**Python** intermediate : particle tracking of micro-algae going through dumbbell shaped wells, and analysis of their dynamics (speed, position density, orientation, ...) ; project to model capsid formation using Monte-Carlo simulation, , **FIJI**

**Word**, **Excel** tables, and **Powerpoint** knowledge, **R software** and **Minitab** for basic probability studies.

## WORK EXPERIENCE

Internship : **photoresponse of a microalgae swimming in a complex environment**

LABORATOIRE ONDE ET MATIERE AQUITAINE (LOMA) • 2024 • SUPERVISORS : FRANÇOISE ARGOUL, ANTOINE ALLARD

Study of *Chlamydomonas Reinhardtii* dynamics in a confined space in the presence of phototactic light using optics and microfluidics chips.

**Workshop – scientific poster : Chlamyting**

BORDEAUX – LOMA • 17/05/2024

Presentation of a scientific poster during a workshop focusing on micro-swimmer, namely *Chlamydomonas Reinhardtii*.

Internship : **study of DNA integrity and repair proteins of a cell under mechanical compression**

LABORATORY OF COMPUTATIONAL AND QUANTITATIVE BIOLOGY (LCQB) • 2023 • SUPERVISOR : JUDITH MINE-HATTAB

Study of protein foci in a nucleus when putting the cell under mechanical pressure, using microfluidic chips, and super resolution techniques (PALM)

**Student Organisation: IGEN**

SORBONNE UNIVERSITÉ • 2023 - 2024

International Genetic Engineered Machine competition : genetically modified a *Pseudomonas Putida* culture to improve its ability to degrade pollutants from soils – Gold Medal 2023

**University Project : DNA extraction and molecular Barcoding**

WATERFORD INSTITUTE OF TECHNOLOGY LABORATORY • 2022 • SUPERVISOR : DAVID O'NEILL

Detection of eventual substitutions in fish products sold in supermarkets through genetic analysis

## HOBBIES & OTHERS

- Sports : Volleyball** – former member of **Kilkenny Spartans, Premium League team in Ireland** & university teams (Wit, Sorbonne) / **Basketball** – club and outdoor / **Climbing** / **Running** / **Hiking**
- Travels** : Germany, Tunisia, Great Britain, Italy, Spain, Ireland, Northern Ireland
- Music**: Various interests. Piano beginner, bass guitar, singing
- Reading interests**: Various (Frank Herbert, Emily Brontë, Lian Hearn, Dorian Sukegawa, Racine, Jean Anouilh ...)
- Cooking and Baking**
- Board and video games** : role play, strategy, management games



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