

# Antoine Djeukeng Momo

Applied Physics | Molecular Simulations | Scientific Computing

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## Profile

Background in **physics and materials science**, with a PhD in **applied physics** focused on **molecular dynamics simulations** of ion transport and water filtration in **charged graphene nanochannels**. Experience includes **LAMMPS / GROMACS simulations**, **post-processing of large datasets**, and analysis of **transport properties, selectivity**, and **free energy profiles**. This work is complemented by training in **software engineering (42 Prague)**, with emphasis on **C/C++, Python**, and **Linux-based development**.

## Technical Skills

Simulation	LAMMPS, GROMACS, molecular dynamics simulations
Methods	Transport analysis, free energy (PMF), statistical analysis
Programming	C/C++, Python, data processing, numerical analysis
Data	Large-scale dataset processing, feature extraction, visualization
Systems	Linux, Bash, reproducible workflows

## Experience

Research Assistant 2022 – Present

University of South Bohemia

- Performed **molecular dynamics simulations** of ion transport in nano-confined systems.
- Studied **water filtration** and **ion selectivity** in charged graphene nanochannels.
- Developed **post-processing pipelines** in C/C++ and Python for large-scale simulation data.
- Computed **transport properties, free energy profiles**, and structural observables.

## Publications & Research Work

### Ion transport and selectivity in charged graphene nanochannels

- Molecular dynamics study of ion transport and water filtration in nano-confined systems.
- Analysis of **selectivity mechanisms, electrostatic effects**, and confinement.
- Work prepared for submission (CDI / nanochannel transport study).

### Simulation and Analysis Framework

- Developed tools for **trajectory analysis**, density profiles, and transport observables.
- Computed **cumulative flux, conductivity**, and system-dependent transport behavior.

## Education

University of South Bohemia	PhD in Applied Physics (defense pending)	2022 – 2026
42 Prague	Software Engineering Program	2024 – 2025
University of Yaounde I	MSc in Materials Science (French)	2016 – 2019
University of Yaounde I	BSc in Physics (French)	2013 – 2016

## Languages

French	Native	Language of instruction (BSc, MSc)
English	C1	Current academic and research language
Czech	A1	Basic level, currently learning



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