

# YVES HERI KIMBELE

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## RESEARCH AREAS

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### Space charge effects on short pulses beam profile

Space charge effects on the dynamics of short pulse gaussian and top-square beam profiles, phase-space trajectories of electrons in the diode vacuum gap, high-power vacuum devices.

### Ultrafast phenomena

Ultrashort pulse transport, plasma-laser interaction, plasma-material interaction, plasma discharge and instabilities.

### Machine learning and computational plasma physics

Machine learning algorithms to analyze large datasets of plasma simulation, and developing new machine learning methods for predicting plasma behavior or optimizing plasma simulations.

## EDUCATION

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<b>Doctoral Student</b>   <i>Electrical and Electronics Engineering</i> Michigan State University (NanoPATH Group / Prof. Peng Zhang)	First year East Lansing, MI, USA
<b>Master of Science</b>   <i>Mathematical Sciences</i> African Institute for Mathematical Sciences	August 2021 – June 2022 Kigali, Rwanda
<b>Master of Science</b>   <i>Electrical Engineering</i> University of Lubumbashi	October 2015 – July 2017 Lubumbashi, Congo DR
<b>Bachelor of Science</b>   <i>Electrical Engineering</i> University of Lubumbashi	October 2012 – July 2015 Lubumbashi, Congo DR

## ADDITIONAL EDUCATION

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<b>High Energy Density Science Summer School</b>   ( <i>Admitted</i> ) UC San Diego	July 17-28, 2023 La Jolla, CA, USA
<b>2nd United States Low Temperature Plasma Summer School</b>   ( <i>Admitted</i> ) University of Michigan	June 26-30, 2023 Ann Arbor, MI, USA
<b>Symmetries Graduate School 2023</b> Perimeter Institute for Theoretical Physics	January 23- February 3, 2023 Waterloo, ON, Canada

## PROJECTS AND RESEARCH

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<b>Computational plasma physics and engineering</b>   <i>Doctoral Research</i> Michigan State University	Started in August 2022
<b>Data analytics to identify electricity theft</b>   <i>Master Research</i> African Institute for Mathematical Sciences	January 2022 – June 2022
<b>Design and realization of an optimized PV system</b>   <i>Master Research</i> University of Lubumbashi	October 2017 – April 2018
<b>Comparison of classical PID tuning methods</b>   <i>Bachelor Thesis</i> University of Lubumbashi	April 2015 – December 2015

## PAPERS AND CONFERENCES

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<b>Space charge effects on the evolution of short pulse beam profiles</b> Poster presentation at the 50th IEEE ICOPS 2023	May 2023
<b>Price dynamics for net electric energy metering on a distribution network</b> Paper presentation at 2021 IEEE PES/IAS PowerAfrica	August 2021
<b>Modelling of LV distribution network with preassembled aluminum cables</b> ISTE OpenScience	June 2020
<b>State of the energy sector in Congo</b> Tabora Center Engineers' Conference	April 2017

## WORK EXPERIENCE

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<b>Assistant Lecturer</b> University of Lubumbashi <ul style="list-style-type: none"><li>• Lecturing and student supervision</li><li>• Research</li></ul>	Started in May 2018 Lubumbashi, Congo DR
<b>Intern Engineer</b> CHEMAF Usoke <ul style="list-style-type: none"><li>• Engine preventive maintenance</li><li>• Calculation of electrical conduits</li></ul>	May 2017 – October 2017 Lubumbashi, Congo DR

## HONORS AND AWARDS

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<b>AIMS Rwanda Excellence Award</b> For the best performance of the AIMS Rwanda 2022 cohort	2021 - 2022
<b>MasterCard Foundation Scholar</b> The program aims to develop a cohort of ethical, enterprising and energetic young leaders who will lead and direct socio-economic transformation in Africa	February 2022
<b>AIMS Rwanda Scholarship</b> Merit-Based Scholarship to Pursue Masters Program in Mathematical Sciences	August 2021
<b>MMG Scholarship for academic excellence</b> Merit-Based Scholarship to Support Engineering Students with High Achievements at University of Lubumbashi	2016
<b>Best Laureate in Electronic for the State Exam in the Katanga Province</b>	2012

## TEACHING EXPERIENCE

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<b>Programmable logic systems - ESI</b> University of Lubumbashi	2020 – 2021 Lubumbashi, Congo DR
<b>Power distribution networks - ESI</b> University of Lubumbashi	2019 – 2020 Lubumbashi, Congo DR
<b>Physics - Electromagnetism</b> University Katumba-Mwanke	2018 – 2019 Kasenga, Congo DR

## COMMUNITY INVOLVEMENT

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<b>Mount Hope tutoring program</b>	Started in November 2022
Assisting student of public schools with their weekly assignments and homework	
<b>Head of the scientific department of the cultural center of ESI</b>	2015 – 2017
In charge of organizing lectures given by various guest researchers and personalities	Lubumbashi, Congo DR
<b>Soccer team manager</b>	2015
Manager of Kids from my neighborhood who wanted to enroll in a soccer tournament but lacked adequate supervision	Lubumbashi, Congo DR
<b>Teacher of the basics of programming microcontrollers and robotics</b>	Started in 2020
Teaching the basics of programming microcontrollers and robotics to several categories of young people ranging from elementary school to university level	Lubumbashi, Congo DR

## SKILLS

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**Languages:** English, French (Native), Swahili

**Programming:** Python (NumPy, SciPy, Matplotlib, Pandas, PlasmaPy), MATLAB, Mathematica, Java

**Document Creation:** Microsoft Office Suite, LaTeX, Markdown