

# YVES KIMBELE HERI

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## RESEARCH INTERESTS

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### Space Charge Effects on Charged Particles Beam Profiles

Studying space charge effects on the dynamics of short pulse beams and their impact on particle transport in low and high intensity charged particle systems and their applications in accelerator physics.

### Electron Beam and Plasma Interactions

Studying the dynamics of short pulses of charged particle beams in high-energy conditions, focusing on beam-plasma interactions, plasma-laser interactions, beam-material interactions, plasma discharges.

### Computational plasma physics and Machine learning

Applying particle-in-cell simulations, machine learning techniques, and structure-preserving numerical integrators in plasma physics and charged particle dynamics.

## EDUCATION

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<b>Doctoral Student</b>   <i>Electrical and Electronics Engineering</i> Michigan State University (NanoPATH Group / Prof. Peng Zhang)	Third 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> UC San Diego	July 17-28, 2023 La Jolla, CA, USA
<b>2nd United States Low Temperature Plasma Summer School</b> 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>SCL Current Scaling for Short-Pulse Beam in a Vacuum Diode with Different Pulse Shapes</b>	April 2024
Poster presentation at the 25th Annual IEEE International Vacuum Electronics Conference	
<b>Space Charge Effects on the Evolution of Short Pulse Beam Profiles</b>	October 2023
Poster presentation at the 76th Annual Gaseous Electronics Conference 2023	
<b>Space charge effects on the evolution of short pulse beam profiles</b>	May 2023
Poster presentation at the 50th IEEE ICOPS 2023	
<b>Price dynamics for net electric energy metering on a distribution network</b>	August 2021
Paper presentation at 2021 IEEE PES/IAS PowerAfrica	
<b>Modelling of LV distribution network with preassembled aluminum cables</b>	June 2020
ISTE OpenScience	
<b>State of the energy sector in Congo</b>	April 2017
Tabora Center Engineers' Conference	

## WORK EXPERIENCE

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

## HONORS AND AWARDS

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<b>Best Presentation Award - 14th MIPSE Graduate Symposium</b>	November 2023
The best poster presentation award at the 14th MIPSE symposium in Ann Arbor, Michigan	
<b>AIMS Rwanda Excellence Award</b>	2021 - 2022
For the best student performance of the African Institute for Mathematical Sciences in 2022.	
<b>MasterCard Foundation Scholar</b>	February 2022
The program aims to develop a cohort of ethical, enterprising and energetic young leaders who will lead and direct socio-economic transformation in Africa.	
<b>AIMS Rwanda Scholarship</b>	August 2021
Merit-Based Scholarship to Pursue Masters Program in Mathematical Sciences	
<b>MMG Scholarship for academic excellence</b>	2016
Merit-Based Scholarship to Support Engineering Students with High Achievements at University of Lubumbashi.	
<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>	2020 – 2021
University of Lubumbashi	
Lubumbashi, Congo DR	
<b>Power distribution networks - ESI</b>	2019 – 2020
University of Lubumbashi	
Lubumbashi, Congo DR	
<b>Physics - Electromagnetism</b>	2018 – 2019
University Katumba-Mwanke	
Kasenga, Congo DR	

## COMMUNITY INVOLVEMENT

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### **Mount Hope tutoring program**

Assisting student of public schools with their weekly assignments and homeworks.

Started in November 2022

Lansing, MI, USA

### **Head of the scientific department of the cultural center of ESI**

In charge of organizing lectures given by various guest researchers and personalities.

2015 – 2017

Lubumbashi, Congo DR

### **Soccer team assistant-manager**

Manager of Kids from my neighborhood who wanted to enroll in a soccer tournament but lacked adequate supervision.

2015

Lubumbashi, Congo DR

### **Volunteer Teacher of the basics of programming and robotic**

Teaching the basics of programming and robotics to several categories of youth ranging from elementary school to university level.

Started in 2020

Lubumbashi, Congo DR

## SKILLS

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

**Programming:** Python (Pandas, PlasmaPy, TensorFlow, Keras, scikit-learn), C, C++, MATLAB, Mathematica, Java

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