# Carlos Mbala Dibaya

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## Education

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|---|---|
| Oct 2018–Dec 2022 | **PhD in Applied Mathematics**, *University of Leeds*, Leeds, United Kingdom, **Dissertation**: "Integrable initial-boundary value problems and solution methods for the nonlinear Schrödinger equation". **Supervisor**: Dr Vincent Caudrelier. |
| Aug 2017–Jun 2018 | **Masters in Mathematical Sciences**, *University of the Western Cape*, Cape Town, South Africa, **Dissertation**: "Maximum principle for weak solutions of reaction-diffusion equations". **Supervisor**: Professor Roumen Anguelov. I graduated Cum Laude. |
| Oct 2010–Jun 2015 | **Bachelor in Mathematical Sciences**, *University of Kinshasa*, Kinshasa, Dem. Rep. of the Congo, **Dissertation**: "Sur la programmation linéaire semi-infinie". **Supervisor**: Professor Mubenga Kamputo. I graduated top of my class (87%). |

## Scholarships

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| 2018–2022 | **Full-Time International Doctoral Studentship**, *School of mathematics*, University of Leeds. |
| 2017–2018 | **AIMS Bursary**, *African Institute for Mathematical Sciences (AIMS)*, Cape Town, South Africa. I was awarded this bursary to support my master's degree at the University of the Western Cape. |

## Publication

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| 2021 | **Nonlinear mirror image method for nonlinear Schrödinger equation: Absorption/emission of one soliton by a boundary**, *Vincent Caudrelier, Nicolas Crampé, **Carlos Mbala Dibaya***, Studies in Applied Mathematics, October 2021. |

## Research activity

### Academic talks

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| Oct 2022 | **Integrable Systems seminar**, *Speaker*, School of Mathematics, University of Leeds, United Kingdom. **Title**: "Nonlinear mirror image method for the (focusing) nonlinear Schrödinger equation with time-dependent integrable boundary conditions". |
| Feb 2022 | **Applied PGR Seminar series**, *Speaker*, School of Mathematics, University of Leeds, United Kingdom. **Title**: "Inverse scattering transform for the focusing nonlinear Schrödinger equation with nonzero boundary conditions". |
| July 2021 | **4th IMA Conference on Nonlinearity and Coherent Structures**, *Speaker*, Institute of Mathematics and its Applications, United Kingdom. **Title**: "Nonlinear mirror image method for the nonlinear focusing Schrödinger equation with time-dependent dependent integrable boundary conditions". |
| Oct 2020 | **Applied PGR Seminar series**, *Speaker*, School of Mathematics, University of Leeds, United Kingdom. **Title**:"Inverse scattering transform for the nonlinear Schrödinger equation with zero boundary conditions". |
| Dec 2017 | **Model Theory Module**, *Speaker*, AIMS, Cape Town, South Africa. **Title**: "Filters and ultrafilters". |

### Conferences and workshops attended

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| June 2022 | **Poisson structures and Noncommutative Integrability**, *Participant*, University of Kent, Canterbury, United Kingdom. |
| June 2022 | **Postgraduate research conference 2022**, *Participant*, School of Mathematics, University of Leeds, United Kingdom. |
| May 2022 | **New Trends in Lagrangian and Hamiltonian Aspects of Integrable Systems**, *Participant*, School of Mathematics, University of Leeds, United Kingdom. |
| June 2019 | **Applied PG Conference**, *Participant*, School of Mathematics, University of Leeds, United Kingdom. |
| May 2019 | **Leeds Workshop on Brackets, reduction, and integrability**, *Participant*, School of Mathematics, University of Leeds, United Kingdom. |

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| Apr 2019 | **Integrable Systems in Newcastle: Integrability and Applications**, *Participant*, Northumbria University, Newcastle, United Kingdom. |
| Jan 2018 | **Women in Discrete Mathematics and its Applications**, *Participant*, AIMS, Cape Town, South Africa. |

## Teaching experience ($\sim$ 1000 hours)

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| Sept–Dec 2022 | **Mathematical Biology**, *marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2022 | **Analytic Solutions of Partial Differential Equations**, *marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2022 | **Elementary Differential Calculus**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Jan–May 2022 | **Real Analysis**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2021 | **Vector Calculus**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Jan–May 2021 | **Real Analysis**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Jan–May 2021 | **Calculus of Variations**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2020 | **Vector Calculus**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2020 | **Elementary Differential Calculus**, *marking*, School of mathematics, University of Leeds. |
| Jan–May 2020 | **Nonlinear Differential Equations**, *tutoring and marking*, School of mathematics, University of Leeds. |
| Sept–Dec 2019 | **Analytic Solutions of Partial differential equations**, *marking*, School of mathematics, University of Leeds. |
| Jan–Dec 2016 | **Functional analysis**, *tutoring and marking*, Department of Mathematics and Computer Science, University of Kinshasa. |
| Jan–Dec 2016 | **Real analysis**, *tutoring and marking*, Department of Mathematics and Computer Science, University of Kinshasa. |
| Jan–Dec 2016 | **Measure theory**, *tutoring and marking*, Department of Mathematics and Computer Science, University of Kinshasa. |

## Teaching training

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| Oct 2019 | **Supporting Postgraduates who Teach Mathematics & Statistics**, International Centre for Mathematical Sciences, Edinburgh, United Kingdom. |
| Sept 2019 | **Foundations in teaching**, University of Leeds, United Kingdom. |

## Administrative experience

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| 2020–2021 | **Applied PGR Seminar series**, *Member of the organisation committee*, School of mathematics, University of Leeds, Academic year 2020-21. |

## Languages

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| **Lingala** | Native speaker |
| **French** | Fluent |
| **English** | Fluent |

## Computing skills

### Python training

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| Feb–Mar 2022 | **Introduction to Data Science in Python**, University of Michigan, Coursera. |
| Jan–Mar 2022 | **Python, Intro to machine learning, Pandas and Intermediate machine learning**, Kaggle website. |
| Aug–Dec 2017 | **Python course**, AIMS, Cape Town, South Africa. |
| Dec 2017 | **Data analytics course**, AIMS, Cape Town, South Africa. |

### Miscellaneous skills

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| **Software** | LaTeX, Microsoft Word, Maple, SageMath, Singular |
| **Programming** | Fortran (Basics), C (Basics) |
| **OS** | Windows, Linux/Ubuntu |
| **Git** | GitHub, Bitbucket |

## Extra Curriculars

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| Apr 2020 | **Fund raising campaign**, *Campaign manager*, Go Fund Me platform. |
| | In the middle of the first wave of Covid19, I teamed up with two friends to help raise funds for children in orphanages based in Kinshasa. |

2019–2022 **Youth for Development Foundation (YouDeF)**, *Active member*, Kinshasa, Dem. Rep. of the Congo.
YouDeF is an NGO based in Kinshasa that supports young people by teaching them practical skills and helping them become productive for the local community.