Black Heroes of Mathematics 2025 – 1/2 October 2025
Agenda, speakers, titles and abstracts

Wednesday 2 October

12:00 **Registration**

13:00 **Welcome from the organisers**

13:10 **Juliet Ojiako (in person)**

Elbert Cox: The First Black PhD Mathematician

In this talk, I will be discussing Elbert Cox, the first Black Mathematician to gain a PhD 100 years ago. What can we all learn from him 100 year on?

13:50 **Dr. Syreeta Charles-Cole (in person)**

Mathematics, me and the Data of Life: Journey of a Cultural Metrologist

In this talk, I will discuss my journey from, doing a PhD in Mathematics to Data Scientists to Cultural Metrologists. I will share my challenges, my triumphs, my work and my lessons learnt.

14:40 **BREAK**

14:50 **Gloria Antwi-Botchway (online)**

Breaking Boundaries: My Journey in Mathematics and the Mission to Inspire the Next Generation of Women in STEM

In this presentation, I will share my journey as the first female to earn a Ph.D. in Mathematics from the University of Ghana, highlighting how resilience, mentorship, and purpose have shaped my path in mathematics and a deep commitment to creating opportunities for others. I will reflect on the personal and academic experiences that shaped my path—from undergraduate studies in Mathematics and Philosophy, through graduate research in applied

mathematics, to my current role as a researcher and lecturer. The talk will explore my research in mathematical modeling and medical image processing, emphasizing how mathematics can drive impactful change in public health. I will also highlight my current project on assessing the impact of malaria vaccines in Ghanaian children, and my budding interest in Models for interacting populations and it's applications in ecology and biology. Beyond my academic work, I will focus on my passion for STEM advocacy, particularly through initiatives like the M-in-the-STEM Project, which aims to encourage young girls to pursue careers in mathematics-based fields. I serve as a facilitator in workshops for mathematics teachers, with a focus on strengthening pedagogical approaches and making mathematics more accessible. A key part of this work includes promoting the use of local languages in mathematics instruction to deepen conceptual understanding, particularly among early learners. I will also discuss ongoing and future initiatives such as a community outreach program- the BOUNDLESS Project- designed to target deprived communities to raise awareness about careers in mathematics and inspire young minds, particularly girls, to view mathematics as a tool for transformation. Drawing on real-life stories and challenges, I will share insights into what it means to be a Black woman in mathematics and why creating inclusive, supportive environments is crucial to diversifying the field. This talk will examine the impact of representation, inclusive education, and culturally relevant pedagogy on shaping a more equitable mathematical future. It is both a personal testimony and a call to action—to continue breaking barriers, mentoring others, and championing equity in mathematics, advocating, and amplifying the next generation of mathematicians in Africa and beyond

15:30 **Teika Haris (online)**

Dudley Weldon Woodard and his involvement in the establishment of the graduate program in mathematics at Howard University

Mathematician and mathematics educator Dudley Weldon Woodard was the second African American to receive a PhD in mathematics, earning his PhD from the University of Pennsylvania in 1928. He spent his entire career as a professor at historically Black colleges and universities (HBCUs), the second half of which he spent at Howard University, an HBCU in Washington, D.C. While a professor at Howard, Woodard was instrumental in the establishment of the graduate program in mathematics at the university. This was one of the first non-professional graduate programs at an HBCU. In this talk I will share the story of Woodard's journey through mathematics which led him to establishing the masters program in mathematics at Howard University.

16:20 **BREAK**

17:00 **Panel event (in person)**

18:30 **RECEPTION**

Thursday 3 October

09:30 **Registration open**

10:00 **Welcome from organisers**

10:10 **Aondoyima Ioratim-Uba (in person)**

Nature vs. Newton: The Physics of Living Systems.

The "Nature vs. Newton" framing highlights the difference between the complex, often non-equilibrium physics of living systems and the more straightforward, equilibrium-based physics described by Isaac Newton. While Newton's laws are foundational for classical mechanics, they don't fully capture the intricacies of biological processes, which are characterized by self-organization, information processing, and far-from-equilibrium dynamics. I will be exploring this further in my talk

10:50 **Flavia Santos (in person)**

Scoping Maths Anxiety in Our Community – Updated

Maths anxiety (MA) is a feeling of nervousness related to numbers, mathematics homework, or classroom activities (Santos, 2022). Feeling anxious during maths exercises or exams can hinder cognitive processes and cause avoidance behaviours. Then, the less students practice maths content, the lower their maths competence. In turn, maths grades of anxious students may not reflect their potential and leverage a cycle of defeat that can escalate. MA is persistent over time and observed among undergraduates. While extensive MA studies have been conducted in WEIRD samples, research in distinct communities is emerging, accounting for variation across human populations. I will examine the MA research focusing mainly on Black students and the impact of MA on their academic performance. A study highlights causes of MA among Black pupils, such as misconceptions (viewing mathematical ability as innate rather than malleable), Invisibility (experiencing low expectations and dismissive attitudes from teachers), and Intergenerational influences (parental struggles with maths). Furthermore, it has been noted that Black schoolchildren and Hispanic or Black undergraduates are often underrepresented in psychometric studies of tools to measure MA. Classroom climate studies theorise that having a higher percentage of same-ethnic peers in maths classes could offer protective benefits. However, many factors intervene in the association between ethnic representation and classroom

performance, such as intersectionality. Longitudinal research indicates that early MA in Black and Latinx girls predicts low achievement in maths three years later. Upcoming studies should address early MA through interventions tailored for these groups as a vital mechanism to increase their interest in STEM areas.

11:30 **Jordan Marajg (in person)**

A mathematician's perspective on modelling a spacetime scattering problem

We study the relationship between asymptotic data for the wave equation in the past and the regularity of the solution at future the flat Minkowski spacetime. By constructing estimates on a causal rectangle reaching the conformal boundary, we prove that the solution admits an asymptotic expansion near null and spatial infinity whose regularity is controlled quantitatively in terms of the regularity of the data in the past. In particular, our method gives rise to solutions to the wave equation in a neighbourhood of spatial infinity satisfying the peeling behaviour of Penrose, for data in the past with non-compact support. Our approach makes use of Friedrich's conformal representation of spatial infinity and we describe the relationship between the solution and the data both in terms of Friedrich's conformal coordinates and the usual physical coordinates on Minkowski space. This is work to appear soon on arXiv in collaboration with Grigalius Taujanskas and Juan A. Valiente Kroon.

12:10 **LUNCH**

13:00 **Dr Mark Richards (in person)**

From Air Quality to STEM Equity

This talk follows my path into climate research, covering several aspects across the physical sciences, engineering, innovation, and eventually science policy. Additionally, it is rarely considered that some of these same quantitative approaches and techniques that are found in research can also be utilised to address aspects of equity within STEM.

14:00 **Panel (in person)**

15:30 **END**