



SCIENCE WITH JAZZ SEMINAR SERIES

"Where Science and Jazz combine"



24 APR
Thursday 2025



17h00



UKZN Centre for Jazz and Popular Music,
Howard College, Shepstone Building, level 2

SPEAKER:

Professor Bienvenu Ndagano, Associate Professor,
Institut National de la Recherche Scientifique (INRS), Canada

TOPIC:

Time in Quantum Experiments

JAZZ ARTISTS:

Sibusiso Mash Mashiloane
&
Ernest Dawkins

SYNOPSIS: What happens as one tries to travel at the speed of light? Einstein's theory predicts that for a given object with a certain mass, time will slow down as it approaches the speed of light, though never reaching. But what about light itself? Light particles, known as photons, have no mass and travel at the speed of light. Unlike for us human beings, time does not flow for photons. Imagine a photon generated at the time of the Big Bang, flying through the expanding universe to reach our eye. While scientists would say that this series of events would have taken 13 million years, for that travelling photon, it took no time at all; everything happened at once. In quantum optics, we observe multiple phenomena that do not seem to care about time. In this seminar, we will explore the arrow of time in the context of quantum interferometry. This is a technique that has been used as a sophisticated stopwatch for photons, a method of timing light using light itself. We will ask our photon a very mundane question: when did you arrive? We will see that the answer to this question is more complicated than it appears and that photons have a knack for betraying our intuition and understanding of the physical world.



PROFESSOR BIENVENU NDAGANO is a distinguished physicist specializing in quantum photonics. Originally from Bukavu in the Democratic Republic of Congo, he earned his Ph.D. in physics from the University of the Witwatersrand in South Africa in 2018. He pursued postdoctoral research at the University of Glasgow, then transitioned to industrial research with the Fraunhofer Centre for Applied Photonics in Glasgow. In 2023, he was appointed Associate Professor at the Institut National de la Recherche Scientifique (INRS) in Canada, where he holds the Quebec Ministry of Economy and Innovation Chair in Quantum Photonics (2023–2026). His research focuses on exploiting the multi-dimensional properties of photons for applications in communication, imaging, and sensing.



SIBUSISO MASH MASHILOANE has a Masters degree in Jazz Performance, graduating Cum Laude from the University of KwaZulu-Natal. Not only is Mash a great artist in this very vibrant time in South African jazz music, he also is a teacher with a focused goal to help grow talent form a firm foundation of African Roots. He lectures at the University of KwaZulu-Natal and Durban Music School. His focus is to teach and organize live music performances with his students focusing on South African composers and in line with this development Mashiloane is currently busy with his PhD studying the concept of "home" through a South African jazz lens.

As a pianist he appeared with many different groups around the world and is initiating projects of his own. He has now become an integral part of the South African and international jazz scene. Mash and his band have played not only the main stages on the South African circuit, but also many major jazz festivals, such as Cape Town International Jazz Festival and his live performances brought him as far as USA. A highlight was a performance at the African Sauti Za Busara Festival in Zanzibar.

Aside from the strong jazz influences, his performances are also inspired by funk, hip hop, gospel and traditional music from South Africa, attracting music fans of all genres as well as straight ahead jazz aficionados. Mash has also built a career in South Africa as a musical director. At the same time he has explored in depth the repertoire of composers such as Bheki Mseleku, Moses Molelekwa, Abdullah Ibrahim, McCoy Tyner, John Coltrane, Hugh Masekela and Bud Powell. is known to be both a virtuoso player and conductor with his live performances being the drawing card that have garnered him audiences worldwide. He is an integral performer of African Jazz music and has built an enthusiastic fan base whilst touring South Africa, USA, Mozambique and Tanzania.



ERNEST DAWKINS is one of the worlds foremost saxophonists and composers, dedicated to ensuring his music reflects the dynamic and evolving cultural memory of the African American aesthetic.

In 2024, Dawkins composed, arranged, and recorded a Jazz Poetry Opera titled Paul Robeson: Man of the People. In December 2022, he was commissioned by the Jazz Institute of Chicago to create Tim Black, Blacker Than Black. In October 2021, South Arts commissioned him to compose Refound Connections. In 2020, Chamber Music America commissioned him to compose and record Redefining Frederick Douglass, a work honoring the abolitionist legacy.

In 2018, Dawkins, alongside the Old Town School of Folk Music, received the International Connections grant from the MacArthur Foundation, funding their 2019 tour of South Africa. This collaboration resulted in the Englewood to Soweto project and the recording of We Want Our Land Back. In 2016, Dawkins was honored with the Joyce Award and composed Quantum Englewood, a piece celebrating the rich cultural legacy of Englewood, Chicago.

ABOUT THE SCIENCE WITH JAZZ SEMINAR SERIES:

2025 is the UNESCO year of Quantum Science and Quantum Technology. In this context the initiated Centre for Quantum Computing and Technology at UKZN presents a series of science seminars combined with Jazz concerts, that informs about relevant concepts in science and technology and their societal impacts. This monthly series intends to inspire inter-disciplinary discussions and synergies, in particular between the sciences and the arts.

Professor Thomas Konrad, Director Designate: Centre for Quantum Computing and Technology, UKZN

Refreshments and a cash bar will be available



INTERNATIONAL YEAR OF
Quantum Science
and Technology

ENQUIRIES: Thulile Zama / zamat1@ukzn.ac.za / 031 260 3385

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