

Democratising MRI Education in Africa

Dr Karyn E Chappell

Postdoctoral Research Radiographer

Imperial College London

ISMRT Governing Board member

ISMRT Abstract and Scientific committee chair 2024-2025

ISMRT Future Leaders Initiative Co-secretary

ISMRM EDI Taskforce ISMRT Representative

Karabo Mokoena, Sarah Green, Nomawethu Busawke, Kate Negus, Mamohlotsane Lydia Sekoli, Liana Sanches, Theonille Mukabagorara, Joe Bwambale, Barry Southers, Cowles Chilingulo, Shawna Farquharson.

ABOUT ISMRT

The International Society for MR Radiographers & Technologists (**ISMRT**), A Section of the International Society for Magnetic Resonance in Medicine (**ISMRM**) is the leading non-profit organization that **provides an international forum for education**, information and research in magnetic resonance for radiographers and technologists throughout the world.



FOLLOW THE CONVERSATION:
WWW.ISMRT.ORG



CONTACT US:
T: +1 510 841 1899 E: smrt@ismrm.org

Taskforce

The ISMRT, with support from the ISMRM and the Bill & Melinda Gates Foundation, provides MRI education resources and support for Radiographers in LMIC.

The ISMRT Future Leaders program goal was to empower MR Radiographers & Technologists around the globe by:



Building Community



Advancing Knowledge



Developing Future ISMRT Leaders for the region



The 1st meeting of the ISMRT Future Leaders Task Force - (Toronto, Canada 2023)

Challenges

Knowledge Gaps

Practice gaps

CHALLENGES:

Lack of certification and accreditation programs

Need for support and supervision of radiographers/technologist in MRI research

ISMRT Mentor & Mentee Teams: 7 countries



Team Tunisia



Krista Runge & Ghofrane Ayari



Team Nigeria

Maila Hughes & Sekinat Zurakat-Aderibigbe

Team Uganda



Barry Southers & Joe Bwambale

Team Kenya



Gail Durbridge & Jackline Thairu

Team Rwanda



Liana Guerra & Theonille Mukabagorara

Team Malawi



Shawna Farquharson & Cowles Chilingulo

Team South Africa



Sarah Green, Karyn Chappell, Kate Negus,
Karabo Mokoena, Nomawethu Busakwe &
Mamohlotsane Lydia Sekoli

Local presentations - 9 mentees

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Mr. Cowles Chilingulo PRESENTATION

TUESDAY 16th JANUARY 2024
 07:45 - 08:30 (CAT)
 QECH Radiology – Conference room



SPEAKER:
 MR. COWLES CHILINGULO
 MALAWI



MODERATOR:
 DR. SHAMINA FARQUHARSON
 ZIMBABWE


PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Malawi
- If you are a Radiographer/Technologist in Malawi - contact Mr. Cowles Chilingulo for more information

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Mr. Joe Bwambale PRESENTATION

TUESDAY 23rd JANUARY 2024
 3pm - 3:45pm (EAT)(GMT +3)
 Zoom: <https://shorturl.at/nrDGH>

SPEAKER:
 MR. JOE BWAMBALE
 UGANDA

MODERATOR:
 MR. BARRY SOUTHERN
 USA

PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Malawi
- If you are a Radiographer/Technologist in Uganda or surrounding countries - contact Mr. Joe Bwambale for more information

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Ms. Jackieine Thairu PRESENTATION

WEDNESDAY 24th JANUARY 2024
 1800 - 1900 (EAT)
 Virtual Zoom Meeting




SPEAKER:
 MS. JACKIEINE THAIRU
 KENYA

MODERATOR:
 DR. GAL DURBRIDGE
 AUSTRALIA

PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Kenya
- If you are a Radiographer in Kenya - contact Ms. Jackieine Thairu for more information
- Email: thairu88@gmail.com for the zoom link

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Mrs. Ghofrane Ayari PRESENTATION

WEDNESDAY 24th JANUARY 2024
 1700 - 1800 (CET)
 Location - Virtual Zoom Meeting




SPEAKER:
 MRS. GHOFRANE AYARI
 TUNISIA

MODERATOR:
 MS. KIERA RUNGA
 UNITED STATES OF AMERICA



PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Tunisia
- If you are a Radiographer/Technologist in Tunisia - contact Mrs. Ghofrane Ayari for more information

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

KARABO'S VIRTUAL PRESENTATION

THURSDAY 18 JANUARY 2023
 19:00-20:00 (SAST)

SPEAKER:
 MS. LYDIA SEKOLI
 JOHANNESBURG SOUTH AFRICA


MODERATOR:
 MS. MALA HUGHES
 AUSTRALIA

PRESENTATION HIGHLIGHTS



- Learn more about ISMRM, ISMRT and ISMRT Future Leaders Africa.
- ISMRT Future Leaders Africa launch event involving free Masterclasses on Basic MRI physics from the author of 'From Picture to Proton' Professor Martin Graves.
- A recent MRI safety case study.
- How to apply for a ISMRT Future Leaders Fellowship in Pretoria.

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT Future Leaders Program Africa

Information Evening
 Hosted by Nomi Busakwe



Saturday 20th January 2024 6:00 pm SAST
 Zoom Webinar

SPEAKER:
 NOMI BUSAKWE
 SOUTH AFRICA

SPEAKER/
 MODERATOR
 SABBAB GREEN
 NEW ZEALAND

PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Malawi
- If you are a Radiographer/Technologist in the Port Elizabeth region - contact Nomi Busakwe for more information

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Sekinat Zurakat-Aderibigbe PRESENTATION

TUESDAY 23rd JANUARY 2024
 Time - 12:00pm (EAT)
 Location - Virtual Zoom meeting




SPEAKER:
 MRS. SEKINAT ZURAKAT-ADERIBIGBE
 NIGERIA

MODERATOR:
 MS. MALA HUGHES
 AUSTRALIA

PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Nigeria
- If you are a Radiographer in Nigeria - contact Mrs. Sekinat Zurakat-Aderibigbe for more information. Email: zakeribib@gmail.com for the zoom link

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

Ms Lydia Sekoli PRESENTATION

THURSDAY 18 JANUARY 2023
 12:30 - 13:30 (SAST)




SPEAKER:
 MS. LYDIA SEKOLI
 JOHANNESBURG SOUTH AFRICA

MODERATOR:
 MS. MALA HUGHES
 AUSTRALIA

PRESENTATION HIGHLIGHTS

- Learn more about ISMRM and ISMRT.
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Johannesburg.

TO REGISTER YOUR INTEREST, CONTACT skholi@ksho.com FOR THE MEETING LINK.

ISMRT A WORLD OF KNOWLEDGE PROFESSIONALS ISMRT FUTURE LEADERS AFRICA

We invite you to know and get involved on this initiative!

Speakers

Thursday 18th JANUARY 2024
 18:00 - 19:00 Rwanda time (GMT +2)
 Via zoom: The link to follow




SPEAKER:
 MS. THEONILE
 UNIVERSITY OF RWANDA/ RW

MODERATOR:
 DR. LIARA SANCHEZ
 UNIVERSITY OF CALIFORNIA

PRESENTATION HIGHLIGHTS

- Learn more about the ISMRM & ISMRT
- Learn more about the ISMRT Future Leaders Initiative - Africa
- Find out how to register for the FREE ONLINE ISMRT Future Leaders Launch Event.
- The 2024 ISMRT Masterclass by Professor Martin Graves (Author of 'From Picture to Proton')
- Find out how to apply for an ISMRT Future Leaders Fellowship in Malawi
- Contact Ms Theonile and Dr Liara for more information

Empowerment, Positioning & Advocacy for and by Mentees

Masterclass series



- A comprehensive course freely accessible via ISMRT included seven lectures by **Prof. Martin Graves on: 'Essential MR Physics through to Application'**
- Registration also included access to 7 Q&A sessions where you get the chance to "Ask the world Expert!"
 - ❖ Week 1: MR Physics & basic concepts behind MRI
 - ❖ Week 2: The phenomenon of resonance the creation of the MR signal
 - ❖ Week 3: Concepts to the principles of k-space
 - ❖ Week 4: The physics and engineering of MR hardware
 - ❖ Week 5: Image contrast in Spin Echo & Gradient imaging
 - ❖ Week 6: The principles of Fast/Turbo Spin Echo and Echo Planar imaging
 - ❖ Week 7: The causes of various MR artifacts

Masterclass Impact

- >1700 registrations across 7 weeks from 45 countries
- 90% of attendees were from 25 African countries
- Average 252 attendees at each Q&A session
- All Mentees from the Future Leaders taskforce served on the panel of Expert Moderators

Eddy Currents

Required gradient waveforms
Actual gradient waveforms
The orthogonal gradient waveforms
Active shielded gradients
Passive shielded waveforms

Phase Encode Gradient Steps

$x = -N_x/2$ $x = -1$ $x = 0$ $x = 1$ $x = N_x/2$

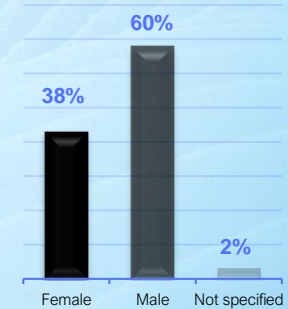
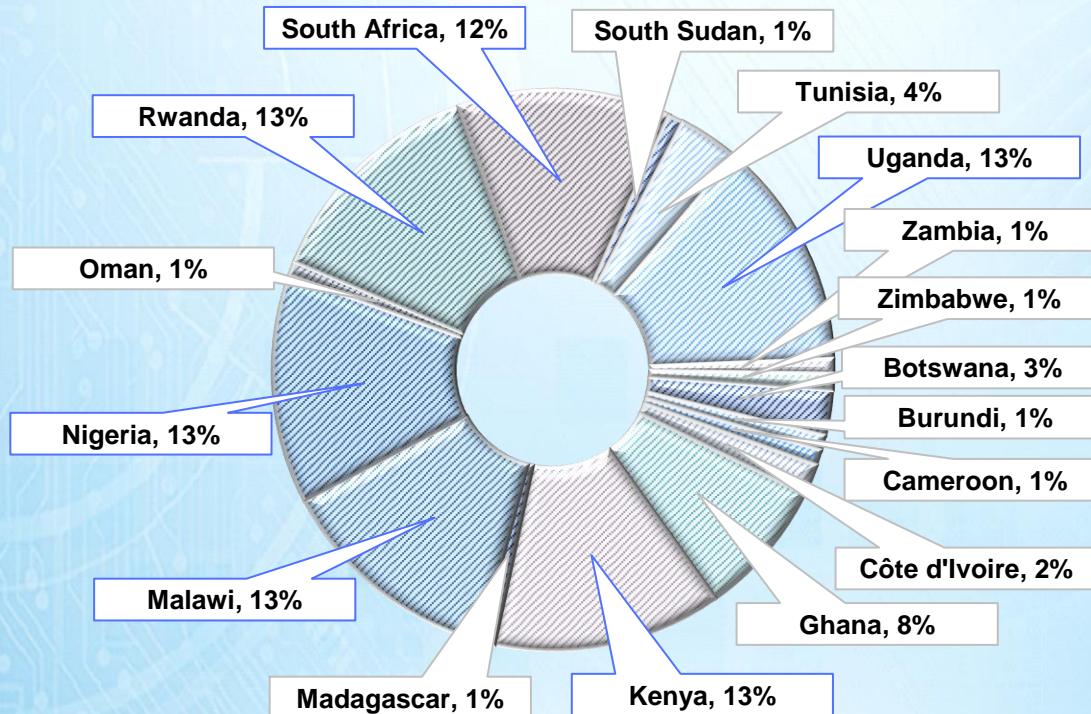
T_1 and T_2 Relaxation (1.5T)

7. 'You say artifact, I say artefact'

Martin J Graves PhD
Consultant Clinical Scientist
Cambridge University Hospitals

ISMRT Future Leaders Fellowships

➤ **Announcement:** With support from the Bill & Melinda Gates Foundation, ISMRM & ISMRT – we have awarded 114 ISMRT Future Leaders Fellowships across 17 Countries!



ISMRT Mentor & Mentee Teams: 16 Countries

INTERNATIONAL SOCIETY FOR MR
ISMRT
RADIOGRAPHERS & TECHNOLOGISTS
A Section of the ISMRM

A WORLD
OF KNOWLEDGE
FOR MAGNETIC RESONANCE
PROFESSIONALS




 **Team Côte d'Ivoire**
Krista Runge & Ghofrane Ayari


 **Team Ghana**
Kate Negus, George Nunoo & Selina Efua

 **ISMRT Nigeria Division**
Maila Hughes & Sekinat Zurakat-Aderibigbe

 **Team Cameroon**
Krista Runge & Ghofrane Ayari

 **Team Zambia**
Vera Kimbrell & Nomawethu Busakwe

 **Team Botswana:**
Vera Kimbrell & Tumisang Kolo

 **ISMRT South Africa Division**
Sarah Green, Karyn Chappell, Kate Negus, Karabo Mokoena,
Nomawethu Busakwe & Mamohlotsane Lydia Sekoli

 **Team Tunisia**
Krista Runge & Ghofrane Ayari

 **Team South Sudan**
Vera Kimbrell & Joe Bwambale

 **Team Uganda**
Barry Southers & Joe Bwambale

 **ISMRT Kenya Division**
Gail Durbridge & Jackline Thairu

 **Team Rwanda & Burundi**
Liana Guerra & Theonille Mukabagorora

 **ISMRT Malawi Division**
Shawna Farquharson & Cowles Chilingulo

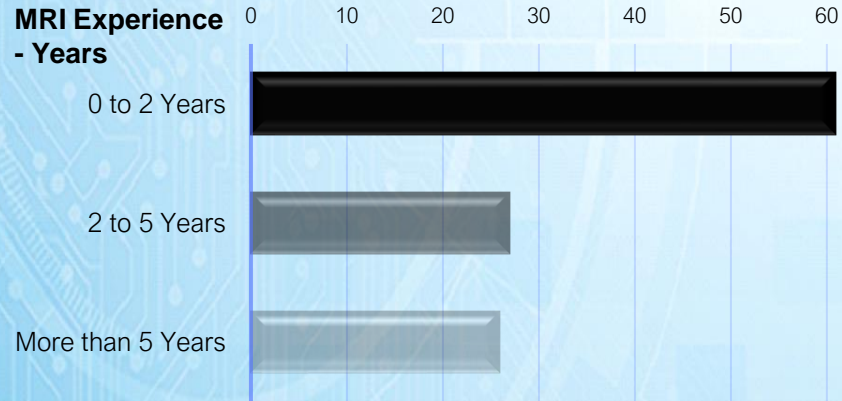
 **Team Zimbabwe**
Vera Kimbrell & Joe Bwambale

 **Team Madagascar**
Krista Runge & Ghofrane Ayari

Future Focus: Practice Gaps

Announcement: Corsmed is helping to address Practice Gaps for Radiographers & Technologists by providing MRI simulator licenses to support six regions across the ISMRT Future Leaders Program

Why is simulation-based training important for the ISMRT Future Leaders Program?



>50% Less than 2 years MRI experience

Advantage of Corsmed solution:

- Vendor-agnostic MRI simulator
- Dynamically generates new images using the same MR physics process as a real scanner
- Provides the practical & technical skills & learning scheme to effectively face the challenges in the clinical and research MRI environments

***'A sustainable and scalable MRI education and support model tailored for
(and ultimately driven by) Radiographers & Technologists in LMICs across different
regions around the world'***

Final words

Karabo Mokoena

— INTERNATIONAL SOCIETY FOR MR —
ISMRT
RADIOGRAPHERS & TECHNOLOGISTS
— A Section of the ISMRM —

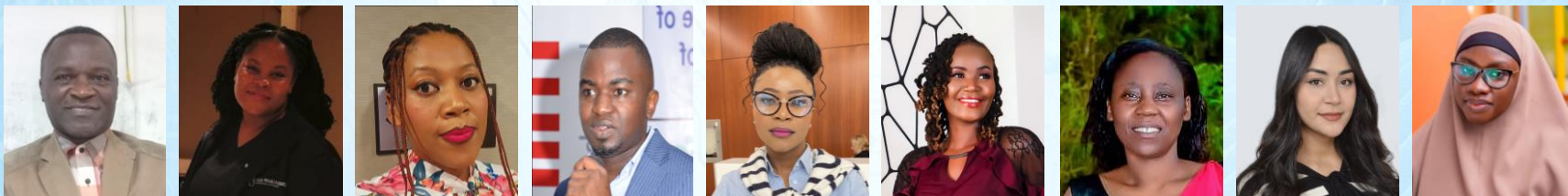
A WORLD
OF KNOWLEDGE
FOR MAGNETIC RESONANCE
PROFESSIONALS



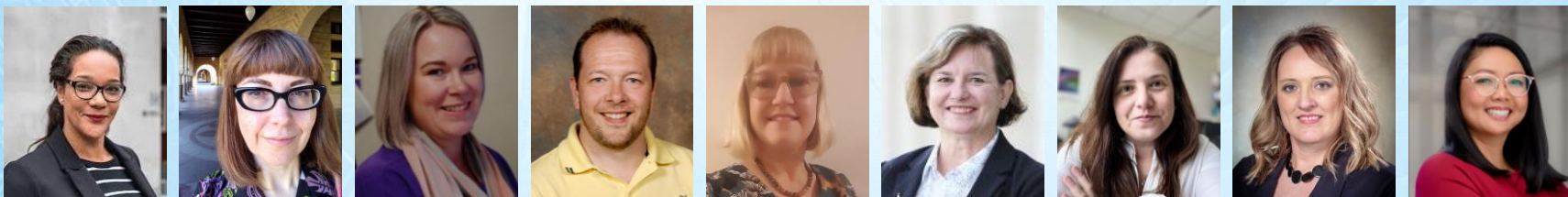
Mamohlotsane
Lydia Sekoli

Nomawethu Busawke

Acknowledgments



The ISMRM Mentees:



The ISMRM Mentors:



The ISMRM Mentors:



The ISMRM & ISMRM Executive:



Sean Deoni

Program Supporters:



—INTERNATIONAL SOCIETY FOR MR—
ISMRT
RADIOGRAPHERS & TECHNOLOGISTS
— A Section of the ISMRM —

**A WORLD
OF KNOWLEDGE
FOR MAGNETIC RESONANCE
PROFESSIONALS**

Welcome to our new ISMRT Future Fellows!



ISMRT Future Leaders Initiative Wishlist



Provision of the IT basics to support Mentors & Mentees

- Zoom/Teams accounts, Microsoft tools pdf readers, data solutions

Access to translation tools and/of professional services

- Zoom/Teams accounts, Microsoft tools pdf readers, data solutions

Support and Funding for Knowledge Exchange Opportunities / Fellowships

- MRI Clinical Practitioners, Applications Specialists & Research Radiographers are positioned to aid MRI Protocol development & Optimization, Development of QA programs, SOPs, Safety Policies and Procedures

Support and Funding for Program Coordinator roles to facilitate support of other LMICs