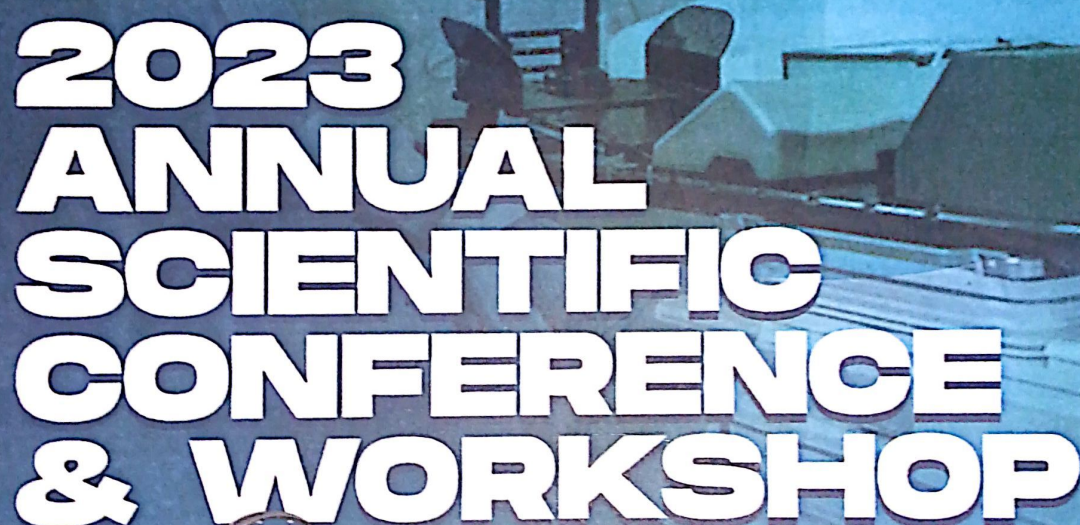




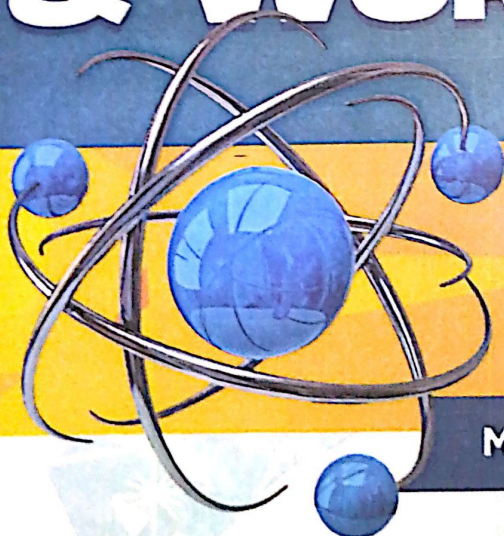
**Nigerian
Association of
Medical Physicists
(NAMP)**



CONFERENCE PAPERS
(72) ON CV



2023 ANNUAL SCIENTIFIC CONFERENCE & WORKSHOP

[illegible]

MEDICAL PHYSICS: Creating Innovation for Safe Radiation Medicine Practice

Mon. 6th - Fri. 10th November, 2023

📍 @ 520 Kolanut Centre, Calabar, Nigeria

PARTNERS



CALABAR 2023 LOCAL ORGANIZING COMMITTEE

NAME	ROLE
Prof. Samuel Inyang	LOC Chairman
Victor Ekpo	LOC Secretary
Prof. Bamidele Awojoyogbe	Scientific Committee Chair
Dr. Mary-Ann Ekpo	Secretary Scientific C'ttee, Head, Welfare
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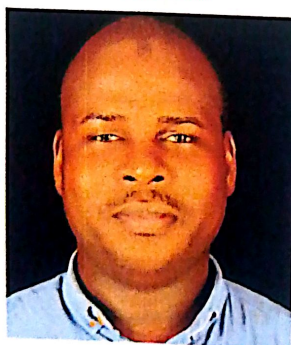
ADEBAYO ABE
Treasurer



OBINNA C. ASOGWA
Public Relations Officer



YAHAYA SALISU
Welfare Officer



MR RILWANU IDRIS
Auditor

TIMETABLE OF ACTIVITIES

Proposed activities are as stated:

Sunday Nov. 5th

- Arrival of participants

Monday Nov. 6th

- Opening Ceremony / Scientific Sessions

Tuesday Nov. 7th

- International Day of Medical Physics (IDMP)/
Scientific Sessions / AGM (dinner)

Wed & Thurs Nov. 8th - 9th

- Radiotherapy Dosimetry Workshop
(sponsored by PTW @ ASI Ukpo)

Friday Nov. 10th

- Radiology Dosimetry Workshop (anchored
by Prof. Sam Inyang at Navy Hosp)

Saturday Nov. 11th

- Departure

DAY 1 – MONDAY NOV 6, 2023 – OPENING CEREMONY		
TIME	ACTIVITY	SPEAKERS
09.00 – 09.30	Introduction / Welcome	PRO / Obinna Asogwa
09.30 – 09.45	Abstract Presentation I Monte Carlo Modelling of Materials for SFRT Grid Collimator.	Paul Muka, Olatunde Oni, Peter Sandwall, Ayo Ibitoye, Samuel Adeneye
09.45 – 10.00	Abstract Presentation II Adequate Quality Dose and Effective Dose Estimation based on Size Specific Dose Estimates for Pediatric CT examinations: An excerpt from AAPM Report 293	Umar M.S., Dambele M.Y., Anam C., Joseph D.Z., Adamu Y., Bappah Y.S., Saad H., Shehu M.S., Abdulhamid M
10.00 – 10.15	Abstract Presentation III Development of Algorithm for Computational NMR-Guided Magnetic Tweezer for Classification of Intermediates in DNA Interaction.	Lazarus John, Dada Michael, Awojoyogbe Bamidele, Simon Abolarinwa
10.15 – 10.30	Abstract Presentation IV Evaluation of Beam Output and Scattered Radiation Prognosis for Ovarian, Cervical and Breast Cancer of Female Patients undergoing Diagnostic Examination in a Nigerian Teaching Hospital.	Gbenga Martins, Paschal Tchokossa, Christopher J. Olowookere

ABSTRACT III

Development of Algorithm for Computational NMR-guided Magnetic Tweezer for Classification of Intermediates in DNA Interaction

Lazarus A. John, Dada O. Michael, Awojoyogbe O. Bamidele, Simon O. Abolarinwa

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Deoxyribonucleic acid (DNA) is the molecule that carries genetic information of living organisms. DNA usually undergoes different interactions for molecular and cellular mechanisms, DNA modifications, transcription and recombination among others. One method to study the interactions DNA undergoes is to apply and measure the applied force on DNA using magnetic tweezer (MT). During DNA interaction, several intermediates occur and understanding these intermediates is crucial to properly classify DNA. Models to classify DNA intermediates are not readily available. In addition, it is sometimes difficult to measure large magnitude of force applied on biomolecules (e.g. DNA) using magnetic tweezer (MT) and this large amount of force could results to damage of DNA.

Therefore, an algorithm that computationally classify intermediates in DNA interaction is developed.

The algorithm was developed using python machine learning program in relation to nuclear magnetic resonance (NMR) parameters similar to those obtainable in magnetic tweezer.

With the developed algorithm in this study and machine learning commands, classification of intermediates in DNA interaction can be achieved by imputing the values of T_1 and T_2 relaxation times.

The innovative model of classifying intermediates in DNA interaction is easy to use provided relaxation data (T_1 and T_2) is available. These data are obtained from relaxometers which are easier to maintain compare to magnetic tweezer. In addition, computational means of classifying DNA intermediates helps to solve the problem of DNA damage as a result of large amount of force applied. Hence, safety is ensured.

Keywords: Algorithm, Computational NMR, Magnetic tweezer, DNA interaction, relaxometer, DNA intermediates.