

# NANOTECHNOLOGY RESEARCH GROUP

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**LAUTECH Nanotechnology Research Group**

*...Enabling Qualitative Research at the Smallest Scale*



**Our Ref.: LAUTECH-NASRDA NANO 2022/COMMUNIQUE**      **Date: November 24, 2022**

**COMMUNIQUE ISSUED AT THE END OF 6<sup>TH</sup> INTERNATIONAL CONFERENCE ON NANOTECHNOLOGY WITH THE THEME 'NANOTECHNOLOGY FOR SOCIO-ECONOMIC DEVELOPMENT OF AFRICA' ORGANIZED BY LAUTECH NANOTECHNOLOGY RESEARCH GROUP (NANO<sup>+</sup>) IN COLLABORATION WITH THE NATIONAL SPACE RESEARCH AND DEVELOPMENT AGENCY (NASRDA) HELD ON 22-24 NOVEMBER, 2022 AT NASRDA CAMPUS, LUGBE, ABUJA, NIGERIA AND VIA WEBINAR.**

## **Preamble**

The LAUTECH Nanotechnology Research Group (NANO<sup>+</sup>), a multidisciplinary group of scholars at Ladoke Akintola University Technology (LAUTECH), Ogbomosho was formed on 4 September 2014 to advance research in nanotechnology. The group has been organizing annual workshops/conferences since 2017, with the participation of academics, technocrats, industrialists and students. Some of the papers presented at these conferences were published in journals in Nigeria and the United Kingdom.

The 6<sup>th</sup> international conference on nanotechnology with the theme '**Nanotechnology for Socio-Economic Development**' held between 22 and 24 November 2022 at National Space Research and Development Agency (NASRDA), Lugbe, Abuja, was jointly organized by LAUTECH Nanotechnology Research Group (NANO<sup>+</sup>) and NASRDA. It was the first conference held outside LAUTECH Campus since 2017 when NANO<sup>+</sup> started organization of nanotechnology conference. About two hundred and ten participants from more than sixty institutions and agencies of government attended the conference. Attendants were received from Nigeria, Malaysia, South Africa, Cameroon, India and Tunisia at the conference. It is worthy of note that more than 30 senior officers of the Nigerian Armed Forces (Army, Airforce, and Navy) and other paramilitary agencies (Federal Road Safety Corps, Nigerian Custom Service and Nigerian Security and Civil Defence Corps) fully participated in the 3-day conference.

### **Workshop on the synthesis of nanoparticles (22 November, 2022)**

On the first day of the event, participants were trained on the synthesis, characterization and applications of nanoparticles which featured three lectures, and practical sessions in which silver nanoparticles were synthesized, and used for antioxidant assay. The workshop took place at the Incubation Center on the campus of the National Space Research and Development Agency (NASRDA). Participants were enthusiastic in observing rapid formation of silver nanoparticles through colour manifestation by using two plant extracts.

### **Courtesy visits**

After the workshop, courtesy visits were paid to the Director-General of NASRDA, Dr. Halilu A. Shaba and the Honorable Minister of Science, Technology and Innovation (STI), Senator Adeleke Mamora at their respective offices. While welcoming the Research Group to NASRDA Campus, the Director-General of NASRDA, Dr Halilu A. Shaba commended the Group for the giant stride made thus far. He advocated for African development premised on African challenges. He reiterated his desire for stronger collaboration beyond organizing workshop/conference and looks forward to supporting LAUTECH-NASRDA collaboration in all forms. The honourable Minister of Science, Technology and Innovation, Federal Republic of Nigeria, Senator Adeleke Mamora received the representatives of the Group along with the Acting Vice-Chancellor of LAUTECH, Prof. M.O. Liasu and Director of Academic Planning, Prof. B.A. Akinwande and NASRDA team on a courtesy visit. The minister acknowledged the efforts of the group and promised to be physically present to declare the conference open.

### **Opening ceremony**

The opening ceremony of the conference was held on November 23, 2022 and was attended by more than 400 people including students from invited public and private secondary schools and representatives of the Chief of Defence Staff, Chief of Naval Staff, Chief of Defence Space Administration, Directors-General of several federal government agencies, Directors of Departments/Units, seasoned academics, technocrats, public servants among others. Of interest was the physical presence of the honourable minister, Senator Adeleke Mamora, Permanent Secretary of the Federal Ministry of Science, Technology and Innovation, Mrs. Monilola Udoh, and the Chairman of National Steering Committee on Nanotechnology Policy Development, Mr. M.E.J Bassey. In his

welcome speech, the Head of LAUTECH Nanotechnology Research Group, Prof. Agbaje Lateef welcomed the Hon. Minister, Permanent Secretary, DG of NASRDA and other important dignitaries to the opening ceremony. He then highlighted the contributions of the research group to nanotechnology R&D in Nigeria, which included the organization of workshops and conferences, facilitation of public discourse on nanotechnology to deepen its understanding, training of manpower and development of curriculum, engagement of the younger generation in its activities on nanotechnology, and unparalleled generation of knowledge in terms of publications on nanotechnology. He mentioned that at least five members of the group are among the top 12 researchers in nanotechnology in Nigeria through their articles that were indexed in Scopus between 2010 and 2020, while two of them were honoured during at the 14<sup>th</sup> combined convocation of Ladoké Akintola University of Technology in April 2022. The group which has some nano-based products as part of its accomplishments also established the first journal on nanotechnology in sub-Saharan Africa, '*Nano Plus: Science and Technology of Nanomaterials*,' which is an open-access journal in its sixth volume. He canvassed for the establishment of a national agency for promotion and exploitation of nanotechnology for national growth and development in Nigeria, and establishment of centre of excellence in nanotechnology.

The Director General of NASRDA, Dr. Halilu A. Shaba, while welcoming the Hon. Minister of FMSTI and all participants to NASRDA Campus, promised that the ongoing approval process of Policy on Nanotechnology R& D would soon be completed. He stated that efforts would be made to build befitting labs for nanoparticles synthesis, characterization and applications, and fully support the activities of the Group. He urged the Group to deepen its relationship with NASRDA, develop archives for nano-products and conduct research that can benefit all. In his goodwill message, Rear Admiral B.E. Oluwagbamila who represented the Chief of Naval Staff commended the organizers and welcome collaboration with the Group, especially in the area of ship's protection from corrosion. He however urged the organizers to always invite companies to their future conferences. Rear Admiral U.S.A. Tugali, Director of Cyber Security at Defence Space Administration challenged the Group to produce nano-products that can protect space assets. He promised that his research group is ready to collaborate with Nano<sup>+</sup>.

The Permanent Secretary, FMSTI, Mrs. Monilola Udoh acknowledged the contributions of the Group and canvassed for 5Cs (communication, cooperation, cordiality, coordination and collaboration) to further elevate the status of the Group. She emphatically stated that by bringing the conference to Abuja,

the Group and nanotechnology have arrived at the right place. She advised the Group to sustain the momentum given the fact that nanotechnology is in line with the mandate of FMSTI.

The conference was declared open by the Hon. Minister of Science, Technology and Innovation, Senator Adeleke Mamora, who was physically present at the event. He commended the efforts of LAUTECH Nanotechnology Research Group in popularizing nanotechnology in the country and her resiliency at constantly breaking the frontiers in the publication and organization of workshops and conferences since 2017. He also appreciated NASRDA for supporting the Research Group by bringing the conference to its right location on its campus. The minister stated that nanotechnology has produced over six million jobs and contributed 3 billion dollars in revenue. He hinted that the draft policy on nanotechnology R&D in Nigeria has been reviewed by the ministry after comments were received from the Federal Government's cabinet office, and was awaiting final consideration and approval before the Federal Executive Council of the Federal Government of Nigeria. He looks forward to seeing the Group performing wonders in nano-product development. He assured the Group of the ministry's desire to establish a centre of excellence in nanotechnology. After declaring the conference open, the Hon. Minister along with other dignitaries inspected '*Nano Stand*' of the Group where posters, publications, photo album and products depicting activities of the Group were displayed. The rapid synthesis of silver nanoparticles was demonstrated to the honourable minister and other dignitaries. He expressed satisfaction with the progress made by the Group thus far.

### **Highlights of lectures by guests at the plenary**

Ten invited lectures were presented during the conference by experts from Nigeria, Malaysia, and Tunisia. In their separate papers presented at the plenary, Prof. Enock O. Dare of Federal University of Agriculture, Abeokuta, Nigeria, and Prof. A.S. AbdulKareem of Federal University of Technology, Minna, Nigeria underscored the importance of innovation and product development in nanotechnology research. Prof. AbdulKareem spoke extensively on **nanotechnology for sustainable food safety** because of the antifungal, antibacterial and antiviral properties of nanoparticles, and their capabilities in the detection of food toxins. He thereafter called on African leaders to prioritize nanotechnology research and funding to project nanomaterial-based product development. Prof. Dare spoke on the topic titled '**Race towards Africa socio-economic advancement requires sustainable nano-enabled system as game changer**'. His talk was largely on making nanotechnology a sustainable endeavor vis-aa-vis the

development of a circular economic program for adoption towards Nigeria's socio-economic developmental agenda. Dr. E.E. Elemike of Federal University of Petroleum, Effurun called our attention to the possible toxicity of nanoparticles especially when food products are involved in his talk which centered on **Nanotoxicology: are our allayed fears about toxicology of nanomaterials correct?** He advised that toxicology tests must always be conducted before nanomaterials are applied.

Prof. S. Adewuyi of Federal University of Agriculture Abeokuta talked about nano-innovative materials for food security and socio-economic development. He revealed that his group has been able to produce chitosan-stabilized metal nanoparticles that had been deployed against pathogens affecting post-harvested fruits and were used for the preservation of vegetables and fruits. Prof. C. Dridi of Technopole of Sousse, Tunisia delivered his paper on smart sustainable nanotechnology-based strategies for nano/micro systems development for good health and well-being. He presented research results on the prevention of food contaminants and prediction and early-stage diagnosis of contaminants using nanoparticles-enabled nanosensors.

**At the end of the workshop/conference, the participants agreed that:**

1. Nanotechnology as a multidisciplinary endeavour is apt to be employed as a tool to achieve the SDGs of the United Nations and must be embraced by all.
2. Nanotechnology researchers should embrace innovative ideas, product development and commercialization towards ensuring that the citizenry and society benefit from their investigations.
3. The Federal Government of Nigeria through FMSTI, NASRDA and other agencies should ensure that significant funding for nanotechnology research is available and establish centres of excellence in nanotechnology to vigorously enhance productivity and innovation in nanotechnology research in Nigeria.
4. Collaboration among nanotechnology scholars is germane to catalyse innovative exploitation of nanomaterials for national development.
5. Inclusion of end-users of nanomaterials should be vigorously pursued, and the participation of the officers of Nigerian Armed and Security Forces at the conference was commended.
6. Efforts of nanotechnology scholars in Nigeria are commendable for their pursuits in the field and encouraged them to remain steadfast.

7. The workshop/conference organized by LAUTECH Nanotechnology Research Group in collaboration with NASRDA has demonstrated the leadership of the Group in promoting nanotechnology R&D in Nigeria with vigour. The workshop/conference was deemed highly impactful as it created awareness on nanotechnology research at the seat of Federal Government of Nigeria.

### **Appreciation**

LAUTECH Nanotechnology Research Group (*NANO*<sup>+</sup>) appreciates FMSTI, the Honourable Minister of Science, Technology and Innovation, Senator Adeleke Mamora, Permanent Secretary, FMSTI, Mrs. Monilola Udoh, Chairman, National Steering Committee on Nanotechnology Policy Development, Mr. M.E.J. Bassey, DG/CEO of NASRDA Dr. Halilu A. Shaba, LOC Chairman and Director, Physical and Life Sciences, NASRDA, Dr. Benjamin G. Ayantunji for the opportunity to host the conference at Obasanjo Space Center which has promoted nanotechnology R&D and LAUTECH Nanotechnology Research Group (*NANO*<sup>+</sup>) unquantifiably. Our Group will continue to work with you to deepen nanotechnology research in Nigeria. We are grateful.

**Prof. A. Lateef**



**Head of Research Group**

**Dr. B.G. Ayantunji**



**Chairman, LOC, 'LAUTECH–NASRDA NANO 2022'**