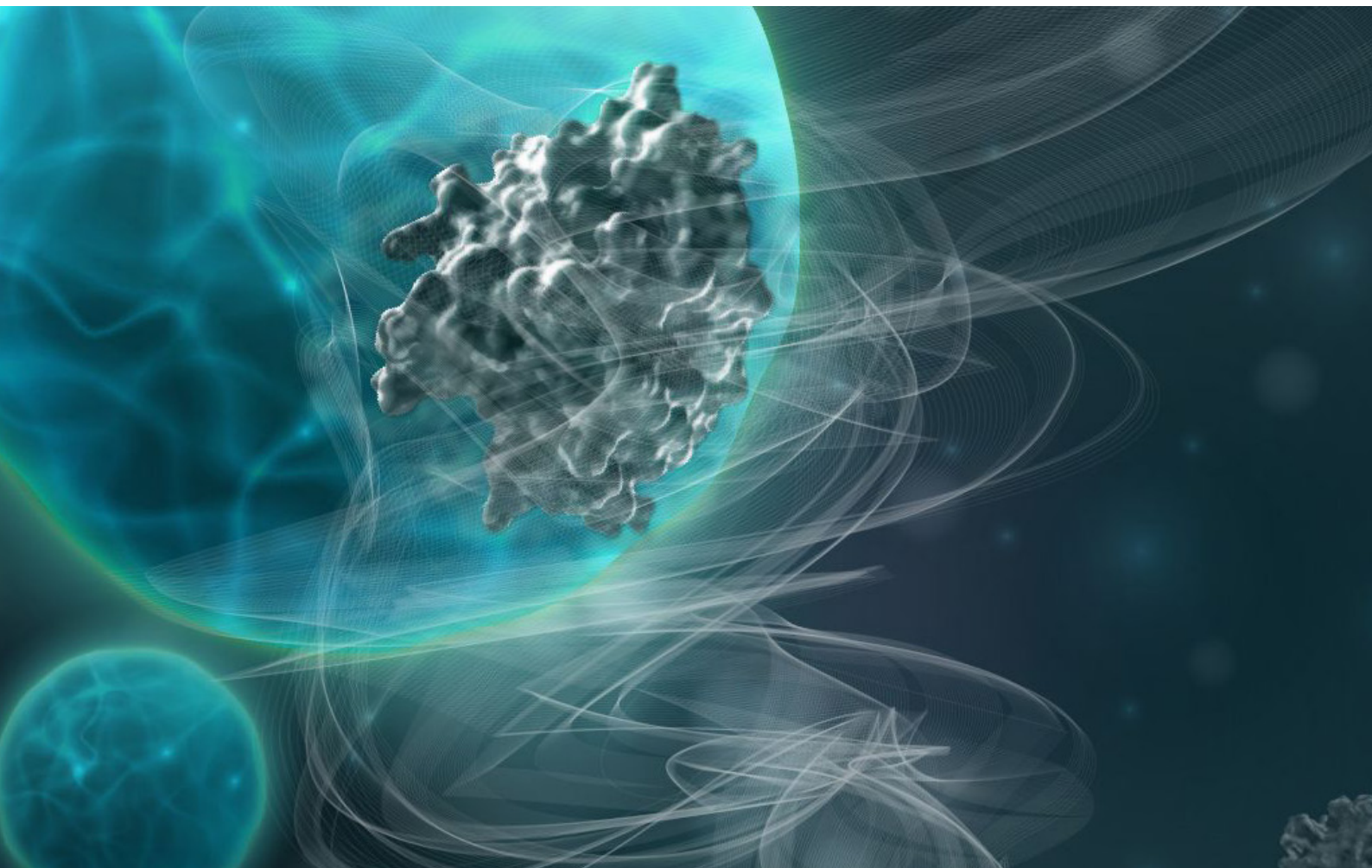




Proceedings of

5TH EDITION OF NANOTECHNOLOGY, NANOMEDICINE & OPTICS PHOTONICS HYBRID CONFERENCE

October 06-07 2022 | Paris, France



HOSTING ORGANIZATION

Linkin Science Pvt. Ltd

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Welcome Message

Linkin Science welcomes you all to the 5th EDITION OF NANOTECHNOLOGY, NANOMEDICINE & OPTICS PHOTONICS HYBRID CONFERENCE which will be hosted in Paris, France during October 06-07, 2022.

This conference is dedicated to provide a platform for high-quality information that describes the most significant and cutting-edge research in all areas of Nanotechnology, Nanomedicine and Optics Photonics applications.

Nanotechnology is rapidly expanding by playing a prominent role in many fields. This Conference is a platform to Industry, Academia, Researchers, Innovators to come together to discuss the research activities, advancements, ideas and exhibit Nano products.

The congress offers a wonderful opportunity to meet and enhance new contacts in the field of Nanotechnology & Optics Photonics, by providing mutual collaboration. It allows delegates to have issues addressed in Nanotechnology and Biophotonics global experts who are up to date with the latest developments in this particular field and provide information on new advancements and other technologies. This International conference features world renowned keynote speakers, Oral presentations, young research forum, poster presentations, workshops and career guidance sessions for students.

Regards,
Scientific Committee



Mission

Our mission is to bring the researchers on a common platform and provide opportunity for them to interact. This scientific networking helps for the betterment of science by exchanging the ideas in a broader way.



Vision

Magnifying Scientific Knowledge by Sharing the research and ideas. We believe in accelerating the possibilities of novel discoveries and enhancement in scientific research, by connecting scientific community for knowledge sharing.



Why Linkin Science

Join us to redefine and explore new research, to provide a credible source to barter ideas for scientific studies. To revolutionize the true outcome of a distinct scientific discovery and grab the attention for rare emerging technologies.

Linkin Science Conferences

Linkin Science conferences are well crafted and designed by a team of skilled experts. Our conferences are vast expanded into Medical, life sciences, health care, Engineering and other social sciences. Each conference, summit or executive briefing is tailored to the sector, topic and audience need. Our event structure varies depending on issue and market requirements featuring Keynote presentations, Oral talks, Poster presentations, Young research forum, Exhibitions, roundtables and variable formats.

Welcome to Linkin Science

Linkin Science organizes a wide range of scientific events worldwide and thus evolving to be a hub for scientists, researchers, doctors, students, industries and delegates. We are dedicated to provide high quality online Journals, Conferences, events and information, through unparalleled speaking sessions, workshops and unique face-to-face networking opportunities. This Scientific Networking creates meaningful relationships with like-minded professionals that elevate the conference experience for the participants. We value the research and other scientific prospects and works done by individuals.

We schedule different Medical, Health Care, clinical and engineering conferences to establish divergent platforms for delegates and other scientific researchers. Each conference, summit or executive briefing is tailored to the sector, topic and audience need. Our event structure varies depending on issue and market requirements. Keynote presentations delivered to all works for some content, whilst other conferences feature multiple breakout sessions, panels, roundtables and variable formats.

A team of highly skilled committee members dwell upon the trending topics of research to create a conference theme which can be used to exhibit ideas and research works among the scientific group laying the path for scientific discoveries.

ORAL PRESENTATIONS

5TH EDITION OF
NANOTECHNOLOGY,
NANOMEDICINE &
OPTICS PHOTONICS
HYBRID CONFERENCE

OCTOBER 06-07
2022
PARIS, FRANCE

NANOTECHNOLOGY 2022

Ferroelectric properties of BiFeO₃ ceramics with cation substitutions at Bi-site (La³⁺, Eu³⁺) and Fe-site (Nb⁵⁺, Zr⁴⁺)

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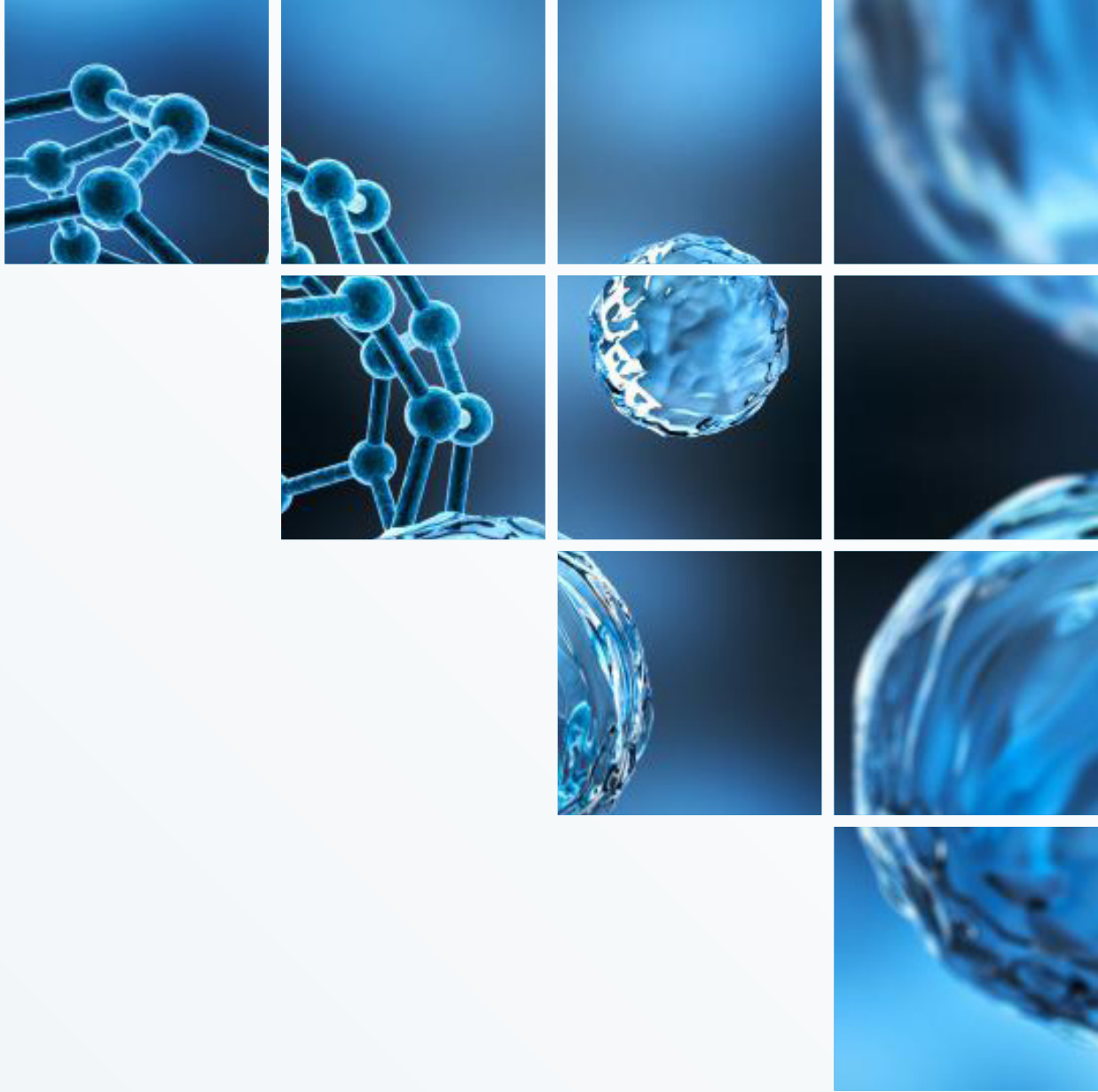
BiFeO₃ is one of the few multiferroic perovskites that exhibits magnetic and ferroelectric properties at room temperature. However, it is also distinguished by high leakage current, low remnant electric and magnetic polarization, and high electric coercive field. These features keep it away from any practical use in electronics. Therefore, many attempts have been made to improve the properties of BiFeO₃ by Bi- or Fe-site doping or by both. Previous investigations suggest that doping with Nb at Fe-site can positively affect the magnetic behavior of BiFeO₃ and decrease the leakage current.

In this study, various cation substitutions at Bi-site (La³⁺, Eu³⁺) and Fe-site (Nb⁵⁺, Zr⁴⁺) were examined to investigate their possible synergism and benefit for the ferroelectric properties. The role of the cations with higher valence is to suppress the formation of structural defects during synthesis, such as oxygen and bismuth vacancies. These defects are responsible for high leakage currents and, consequently, low breakdown voltages characteristic of the pure BiFeO₃. On the other hand, rare earth cations at the Bi-site usually enable densification of the ceramics in a wider range of temperatures, preventing bismuth loss and forming defects and secondary phases during sintering. However, do pant concentrations above 10–15mol% may give rise to transition from polar, rhombohedral (R3c) to non-polar, orthorhombic (Pnma) symmetry.

The carefully selected compositions of doped BiFeO₃ were synthesized by a simple hydro-evaporation method. The ceramics samples were characterized using X-ray diffraction (XRD) analysis, scanning electron microscopy (SEM), and polarization techniques, including leakage current measurements. Although the introduction of Nb⁵⁺ or Zr⁴⁺ decreased the leakage current, they surprisingly deteriorated the ferroelectric properties even at concentrations as low as 1 mol%. This effect was more pronounced for the samples containing Nb. On the contrary, both La³⁺ and Eu³⁺ (incorporated at the Bi-site) improved the ferroelectric properties as their concentrations increased. The La-doped samples exhibited higher remnant electric polarizations at observed electric fields. The highest remnant electric polarization of 31.9 μC/cm² at 150 kV/cm was measured for Bi_{0.85}La_{0.15}Fe_{0.998}Zr_{0.002}O₃, indicating the synergetic effect of La³⁺ and Zr⁴⁺, which is limited to very low Zr⁴⁺ concentrations.

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*We wish to meet you
again at our upcoming conference*

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