# Proceedings of the Mustansiriyah International Conference on Applied Physics (MICAP-2021)

College of Science, Mustansiriyah University, Baghdad, Iraq, June 28-29, 2021







Editors of the proceedings:

Emad H. Hussein Ahmed Al-Haddad Abbas K.H. Albarazanchi

WARSAW

POLISH ACADEMY OF SCIENCES INSTITUTE OF PHYSICS

## Local Scientific Committee:

Ali A. D. Al-Zuky Osama A. Azeez Dakhil

Methaq T. Gaata Emad H. Hussein
Ahmed M. Abdul-lettif Asma H. Mohammed
Mohammed A. Ibrahim Ahmed Al-Haddad

Ali J. Mohammed

#### International Scientific Committee:

Abdul Razak Ibrahim (Malaysia) Hari Mohan Srivastava (Canada)

## Local Organizing Committee:

Mohammed F. Shather Osama A. Azeez Dakhil

Alaa M. Shayia Emad H. Hussein Khaldoon N. Abbas Ruba Al-Obaidi Oday M. Abdulmunem Baida M. Ahmed Abbas K. H. Albarazanchi Haider J. Mohamad

# International Organizing Committee:

Kalpana Bora (India) Helena Cristina Vasconcelos (Portugal)

## Website of MICAP-2021:

https://www.micap.uomustansiriyah.edu.iq/

#### Preface

Mustansiriyah International Conference on Applied Physics (MICAP-2021) was virtually hosted by the Department of Physics, College of Science at Mustansiriyah University in Baghdad, Iraq, on June 28 and 29, 2021 (https://uomustansiriyah.edu.iq/).

The conceptual idea behind the MICAP-2021 is that the science presented there contributes to the development of natural science in the world. Hence, the conference program was organized in such a way as to include interesting oral presentations in interdisciplinary fields proposed by eminent scientists from American, European, and Asian institutes. Accordingly, multiple up-to-date topics in physics were covered by the MICAP-2021 conference. These topics were martial science, optics, nanotechnology, plasma, spectroscopy, lasers, nuclear physics etc.

The MICAP-2021 is a good platform for scholars around the world, however, the spread of Covid-19 obligated us to hold the Conference online. We hope, however, that the second round will take place in reality.

To meet the operational challenges when organizing such a large conference as the MICAP-2021, the partnership of highly renowned journals was established. For instance, *Acta Physica Polonica A* is one of those journals that supports the MICAP-2021 in publishing high-quality papers. As agreed, the abstracts of the papers were preliminarily assessed for compliance with the scope of the journal by Professor Jan Mostowski — the Editor-in-Chief of *Acta Physica Polonica A*. Then, the full-text papers were reviewed by experts from different countries, and finally, the recommended papers were sent for publication.

The guest editors gratefully appreciate the help of the editorial board of  $Acta\ Physica\ Polonica\ A$  in preparing the present Special Issue. Warm gratitude goes also to the organizing, scientific, and supporting Committees, professors, journal editors, and all those who support the MICAP-2021 Conference.

Finally, we would like to express our thanks to all the participants of the Mustansiriyah International Conference on Applied Physics.

Dr. Emad H. Hussein

Conference Principal

Coordinator

Guest Editor