

Department of Physics

# NONLINEAR PHYSICS GROUP CONFERENCE 2023

Theme: Conceptual Results in Nonlinear Physics

Venue: E1-G020 (CIT Male side Auditorium)

Date: 20<sup>th</sup>/02/2023 – 22<sup>nd</sup>/02/2023

Registration deadline – 30<sup>th</sup>/11/2022

FEB  
20-22

Start at  
9am-5pm  
(UAE Time)

## Organizing Committee

Dr. Tunde Joseph Taiwo  
Dr. Laila Al Sakkaf  
Dr. Uthayakumar Thangaraji  
Mrs. Deepa Jithin

## Special Guests

Prof. Alex Kamenev  
Prof. Belic Milivoj  
Prof. A. D. Alhaidari  
Prof. Surajit Sen

FOR DETAILS

201790052@uaeu.ac.ae  
201050232@uaeu.ac.ae

## Special Program

Inauguration of the UAEU  
Journal of Theoretical  
Nonlinear Physics

SUPPORTED BY



William I. Fine  
Theoretical Physics Institute  
UNIVERSITY OF MINNESOTA  
Driven to Discover™

# DEPARTMENT OF PHYSICS *-Nonlinear Physics Group*

## Program Schedules

| S/N                                | Speakers                                | Title of Presentation   | UAE Time                |
|------------------------------------|---|---|-------------------------|
|                                    | <i>Dr. Tunde Joseph Taiwo</i>           | <i>Opening Speech and Welcome address</i>   | <i>10:00am -10:20am</i> |
| <b>Day-One</b><br><b>20/2/2023</b> | <b><i>First Session</i></b>             |   |                         |
| 1                                  | <i>Mr. Abrari Noor Hasmi</i>            | <i>Reservoir Computing prediction in higher order solution of non-linear Schrödinger equation.</i>                                | <i>10:20am-11:00am</i>  |
| 2                                  | <i>Dr. Amaria Javed</i>                 | <i>Simulating an all-optical quantum controlled-NOT gate using soliton scattering by a reflectionless potential well</i>          | <i>11:00am-11:40am</i>  |
| 3                                  | <i>Dr. Saleh Ahmad Baqer</i>            | <i>Shock waves in dispersive hydrodynamics: convex to non-convex dispersion</i>   | <i>11:40am -12:20pm</i> |
|                                    |   | <b><i>Interaction and Lunch Time</i></b>  | <i>12:20pm-1:00pm</i>   |
|                                    | <b><i>Second Session</i></b>            |   |                         |
| 4                                  | <i>Mrs. Neveen G. A. Farag</i>          | <i>Solitons solutions in optical metamaterials using a novel numerical approach</i>   | <i>1:00pm -1:40pm</i>   |
| 5                                  | <i>Mr. Muhammad Luthfi Shahab</i>       | <i>Numerical Continuation on Neural Networks for Bifurcation and Stability Analysis</i>   | <i>1:40pm- 2:20pm</i>   |
| 6                                  | <i>Prof. Boris Malomed</i>              | <u><i>Special Lecture</i></u><br><i>Suppression of the quantum-mechanical collapse by repulsive interactions in bosonic gases</i> | <i>2:20pm – 3:20pm</i>  |
|                                    |   | <b><i>Interaction and Trip to the City</i></b>  | <i>4:00pm – 7:00pm</i>  |
| <b>Day-Two</b><br><b>21/2/2023</b> | <b><i>First Session</i></b>             |   |                         |
| 7                                  | <i>Distinguished Prof. Yuri Kivshar</i> | <u><i>Special Lecture</i></u><br><i>From Invisibility and Metamaterials to Metaphotonics</i>                                      | <i>10:00am -11:00am</i> |
| 8                                  | <i>Prof. Hichem Eleuch</i>              | <i>High-fidelity universal quantum computation with symmetric qubit clusters</i>  | <i>11:00am -11:40am</i> |
| 9                                  | <i>Dr. Nikos (Nick) Lazarides</i>       | <i>Modulational Wave-Wave Interactions in a Plasma Fluid Model</i>  | <i>11:40am -12:20pm</i> |



# DEPARTMENT OF PHYSICS *-Nonlinear Physics Group*

| <i>S/N</i>                     | <i>Speakers</i>                           | <i>Title of Presentation</i>  | <i>UAE Time</i>         |
|--------------------------------|---|---|-------------------------|
| 10                             | <i>Prof. Fatkhulla Abdullaev</i>          | <i>Modulational instability and discrete quantum droplets in binary Bose-Einstein condensates</i>           | <i>12:20pm– 1:00pm</i>  |
| 11                             | <i>Prof. Bakhtiyor B. Baizakov</i>        | <i>Dynamics of imbalanced quasi-one-dimensional binary Bose-Einstein condensate in external potentials</i>  | <i>1:00pm -1:40pm</i>   |
|                                |   | <b><i>Interaction and Lunch Time</i></b>  | <i>1:40pm – 2:40pm</i>  |
|                                | <b><i>Second Session</i></b>              |   |                         |
| 12                             | <i>Prof. Baofeng Feng</i>                 | <i>A unified method to construct various soliton solutions to the nonlinear Schrodinger type Equations.</i> | <i>2:40pm -3:20pm</i>   |
| 13                             | <i>Prof. Hadi Susanto</i>                 | <i>Nonlinear waves of a Nonlocal NLS Equation</i>   | <i>3:20pm - 4:00pm</i>  |
|                                |   | <b><i>Interaction and Trip to the City</i></b>  | <i>4:00pm -7:00pm</i>   |
| <b>Day-Three<br/>22/2/2023</b> | <b><i>First Session</i></b>               |   |                         |
| 14                             | <i>Prof. Ioannis (or Yannis) Kourakis</i> | <i>Nonlinear Electrostatic Waves in Plasmas - Overview of Recent Developments</i>                           | <i>10:00am -10:40am</i> |
| 15                             | <i>Prof. A. D. Alhaidari</i>              | <i>The linear J- Matrix Methods</i>   | <i>10:40am-11:20am</i>  |
| 16                             | <i>Dr. Tunde Joseph Taiwo</i>             | <i>The Nonlinear J matrix Methods</i>   | <i>11:20am -12:00pm</i> |
| 17                             | <i>Prof. Belic Milivoj</i>                | <b><i>Special Lecture</i></b><br><i>On the nature of Optical rogue wave</i>                                 | <i>12:00pm -1:00pm</i>  |
|                                |   | <b><i>Interaction and Lunch Time</i></b>  | <i>1:00pm -1:20pm</i>   |
|                                | <b><i>Second Session</i></b>              |   |                         |
| 18                             | <i>Prof. Boris Malomed</i>                | <i>New experimental and theoretical results for nonlinear fiber lasers</i>                                  | <i>1:20pm-2:00pm</i>    |
| 19                             | <i>Distinguished Prof. Yuri Kivshar</i>   | <i>Nonlinear resonant metaphotonics</i>   | <i>2:00pm -2:40pm</i>   |
| 20                             | <i>Prof. Suraji Sen</i>                   | <i>Frequency and amplitude attenuation using decorated granular metamaterials</i>                           | <i>2:40pm – 3:20pm</i>  |
| 21                             | <i>Dr. Tunde Joseph Taiwo</i>             | <b><i>Closing Remarks</i></b>   | <i>3:20pm – 3:30pm</i>  |

**Note: Each Speaker will spend 30mins for presentation and 10mins for questions and answers excluding the special lectures that will take one hour. Thank you all.**