



LMAP
LABORATORY OF
MATHEMATICS AND
APPLIED PHYSICS
المدرسة العليا للأساتذة - بوسعادة
ENS-BOUSAADA

Ministry of Higher Education and Scientific Research
Higher Normal School of Bou Saada
Department of Science Physics and Laboratory
of Mathematics and Applied Physics



CERTIFICATE OF PARTICIPATION

The Organizing Committee of the Second National Conference on Physics and its Applications
(20 Novembre 2025) is pleased to award this certificate to :

Nacira Tkouti

in recognition of his active participation in the conference with an Oral presentation
entitled: “ MPPT Control of a Stand-Alone Photovoltaic System Using the Grey Wolf
Meta- heuristic Optimization Algorithm (GWO) “

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