



**NATIONAL INSTITUTE OF PHYSICS**  
**COLLEGE OF SCIENCE**  
University of the Philippines  
Diliman, Quezon City 1101 Metro-Manila  
Telephone No. 981-8500 Locals 3701/3704



December 12, 2024

Dr. Wilson O. Garcia  
Director  
National Institute of Physics  
C.S., U.P. Diliman, Quezon City

Dear Dr. Garcia:

Below is the official action of the panel members in the undergraduate thesis defense of Mr. Clarence Ioakim T. Sy. The defense of the thesis entitled "**CLASSROOM LEARNING DYNAMICS USING A CELLULAR AUTOMATA SPATIOTEMPORAL MODEL COMPARING PEER INSTRUCTION AND TRADITIONAL INSTRUCTION**" was held in NIP R211 on Thursday, 12 December 2024, 10:30 A.M.

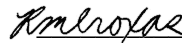
Panel Members

Andrei Espencer M. Ordonio, B.Sc.  
Instructor of Physics  
National Institute of Physics  
C.S., U.P. Diliman, Quezon City

Rating  
PASSED      FAILED



Ranzivelle Marianne L. Roxas-Villanueva, Ph.D.  
Professor of Physics  
Institute of Physics  
C.A.S., U.P. Los Baños, Los Baños



Johnrob Y. Bantang, Ph.D. (Adviser)  
Associate Professor of Physics  
National Institute of Physics  
C.S., U.P. Diliman, Quezon City



The rating is therefore \_\_\_\_\_.

Sincerely yours,

CRISTINE DLR. VILLAGONZALO, Dr.rer.nat.  
Deputy Director for Academic Affairs, NIP