

BỘ GIÁO DỤC VÀ ĐÀO TẠO
TRƯỜNG ĐẠI HỌC SƯ PHẠM HÀ NỘI



HỘI THẢO KHOA HỌC

TRÍ TUỆ NHÂN TẠO - MÔ PHỎNG
VÀ THỰC NGHIỆM TRONG KHOA HỌC VẬT LIỆU

HÀ NỘI, 09/2019

Trí tuệ nhân tạo - Mô phỏng và Thực nghiệm trong Khoa học Vật liệu

Afternoon	
Time	Title/author
13:30 - 14:15	Functional Materials Engineering: printing and coating technology for health and energy applications Assoc. Prof. Wim Deferme: <i>University of Hasselt - Belgium</i> (45 minutes)
14:15 - 14:35	Heterocyclic analogs as optoelectronic materials: Theoretical and experiment design Assoc. Prof. Nguyen Thi Minh Hue: <i>Faculty of Chemistry and Center for computational Science - HNUE</i> (20 minutes)
14:35 - 14:55	Pd catalysed synthesis of N-heterocycles by Cross coupling reactions And finding applications in advanced organic materials Dr. Dang Thanh Tuan, <i>Department of Chemistry - VNU University of Science</i> (20 minutes)
14:55 - 15:15	The Role of C–H Bonds in the Antioxidants of Phenolic Compounds: A DFT Approach Assoc. Prof. Pham Cam Nam, <i>University of Science and Technology, University of Danang</i> (20 minutes)
15:15 - 15:35	New method for creating the broadband microwave coding metamaterial absorbers Dr. Tran Manh Cuong, <i>Faculty of Physics - HNUE</i> (20 minutes)
15:35 - 15:55	Break
15:55 - 16:15	Flexible and ultrathin metamaterial perfect absorbers for wide band at low-frequency region Dr. Bui Xuan Khuyen, <i>Institute of Materials Science - VAST</i> (20 minutes)
16:15 - 16:35	Conductive polymer for metamaterial perfect absorber Dr. Le Dac Tuyen, <i>Department of Physics, Hanoi University of Mining and Geology</i> (20 minutes)
16:35 - 16:55	Quantum chemical study on the geometrical structures and optical properties of small silver clusters confined inside LTA zeolite cavity Dr. Ngo Tuan Cuong: <i>Faculty of Chemistry and Center for computational Science - HNUE</i> (20 minutes)

Conductive polymer for metamaterial perfect absorber

Le Dac Tuyen¹, Vu Dinh Lam²

¹Department of Physics, Hanoi University of Mining and Geology

18 Pho Vien, Hanoi, Vietnam

ledactuyen@humg.edu.vn

²Graduate University of Science and Technology, VAST

18 Hoang Quoc Viet, Hanoi, Vietnam

lamvd@gust-edu.vast.vn

Abstract

We numerically and experimentally investigate a broadband, polarization-independent and wide-incident-angle metamaterial perfect absorber (MPA) based on conductive polymer. By optimizing the electrical conductivity of the polymer, a 16.7 GHz broadband MPA is observed with the absorptivity greater than 80% for both transverse magnetic and electric polarization. The measurement results performed in the range 8-18 GHz show a diametrical concatenation with simulation results and theoretical analysis. The absorption mechanism is explained by demonstrating the influence of polymer conductivity on the dissipated power, the equivalent impedance, and the induced electric field. Our work may contribute to further studies on broadband MPA using for various applications.