平成30年度 CDI招聘外国人研究者講演会



演題: Photonic solution in my laboratory (Phase retrieval using TIE and Backward third harmonic generation in NIM/PIM periodic structure.)

講師: Dr.Prathan Buranasiri

Physics Department, Faculty of Science, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520 Thailand

日時: 平成31年1月16日(水) 14:00~15:00 場所: オプティクス教育研究センター 4F コラボレーションルーム

Abstract

In this talk, the two main researches that have been investigated in my group will be explained.

In the first part, phase retrieval using transport of intensity equation (TIE) used for determining the phase profile of collision behavior on surfaces of alloys and stainless steel will be described. For reducing noise, the experimental setup involves a 4f imaging system has been used. Our results show the capability of TIE for observing the depth and growth of corrosion pits.

In the second part, a set of couple mode equations for describing a backward third harmonic generation (BTHG) in a one-dimensional periodic structure of positive- index material (PIM) layers and third-order nonlinear negative-index material (NIM) layers analyzed using multiple-scale method will be discussed. Due to the negative-index phase matching and band-edge field enhancement the intensities of back-ward third-harmonic pulse generated from the NIM/PIM periodic structure is increased for 100 time of those generated from a single NIM medium.