THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
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Colloquium

H(curl curl)-conforming and H(grad curl)-conforming finite elements — beyond Nedelec

By

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Abstract

In his two ground breaking papers (1980 and 1986), Nedelec proposed H(curl)-conforming and H(div)-conforming elements to solve second-order electromagnetic equations that contains the "curl" and "div" operators. It is more or less as the H^1-conforming elements (or C^0 elements) for second-order elliptic equations that contains the $(\text{grad})^2$ operator. As is well known in the finite element method literature, in order to solve 4th-order elliptic equations such as the bi-harmonic equation, H^2-conforming elements (or C^1 elements) were developed. Recent years, there have been some research in solving electromagnetic equations which involve $(\text{curl})^4$ operator and $(\text{grad curl})^2$ operator. Hence, construction of H(curl curl)-conforming and H(grad curl)-conforming elements becomes necessary. In this work, we report some recent development in this direction.

Date: 23 December, 2020 (Wednesday)
Time: 15:00-16:00 (Hong Kong Standard Time GMT +8)
Venue: Online Talk via Zoom (Meeting ID: 939 7904 1073)
Speaker: Prof. Zhang Zhimin, Beijing Computational Science Research Center
Host: Dr. Li Buyang, The Hong Kong Polytechnic University
Click to join: https://polyu.zoom.us/j/93979041073

Click to join (Zoom)

*** * * ALL ARE WELCOME * * ***

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