**Department of Electronic Engineering**
**&**
**State Key Laboratory of Millimeter Waves (Hong Kong)**

**&**

**IEEE AP/MTT HK Joint Chapter**

**Seminar on**

# A recently developed stable 3D FDTD subgridding method for both spatial and temporal spaces

**by**

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**Time** : **11:00 a.m.– 11:45 a.m.**
**Venue** : **Room G6315 (inside EE Department), Green Zone, 6/F, Academic 1, City University of Hong Kong**

***Abstract***

In this seminar we explain a recently developed three-dimensional finite-different time-domain (FDTD) subgridding method that is stable in both temporal and spatial spaces. First, we give details of a new 3D spatial subgridding method based on Monk's 2D stable method. Using conservation principle we show the new spatial subgridding method is stable, as well as the temporal subgridding method used. Then, by separating the temporal and spatial perimeter interfaces for subgridding to different positions – the "temporal-spatial" coupled problem is decoupled into two separate independent problems. This decoupling makes the new 3D subgridding method naturally stable for electromagnetic wave propagation problems in both spatial and temporal spaces. Numerical results obtained show no late-time instability after ten million time steps.

***Biography***

Dr. Peter Chow is a Group Manager in Environment & Health Research Division at Fujitsu Laboratories of Europe Limited, UK. He has a Ph.D. from the University of Greenwich, London, UK. His research interests are in Computational Science and Engineering, and High-Performance Computing. His responsibility and application of interests include CAD-to-CAE model preparation, open source software for large-scale simulation processing chain, computational electromagnetic, multiphysics and multiscale simulations, and large-scale scalable and distributed methods for computing.

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

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