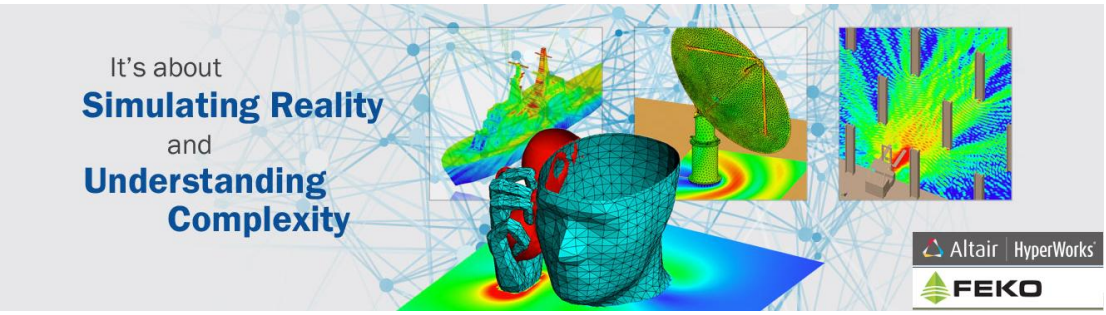

主題：深入探討 **FEKO** 數值電磁混合演算法與應用

時間: 2015.05.26 / 14:00 – 16:00

地點: 台灣大學 電機二館 146 教室

主講者 ：Ulrich Jakobus (Altair Development S.A. (Pty) Ltd, South Africa)

主講簡歷：

Dr Ulrich Jakobus, FEKO Product Manager and Director of EM Software & Systems – S.A. (Pty) Ltd has been named an IEEE Fellow. He is being recognised for leadership in hybrid computational tool development and commercialisation. (November 2012)

Dr Jakobus' leadership over the past two decades had a lasting impact on the productivity of electromagnetic applications engineers all over the world. His contributions brought hybrid computational electromagnetic tools to practice and transformed these into FEKO, a successful commercial package. FEKO is now an industry standard in electromagnetic (EM) analysis software.

Technical contributions and academic work

Dr Jakobus led the development of the highly successful commercial electromagnetic computer code FEKO. FEKO originated in 1991 from research activities of Dr Jakobus at the University of Stuttgart, Germany. It is a hybrid code combining the full wave solution, method of moments (MoM) and high frequency asymptotic techniques (Physical Optics (PO) and Uniform Theory of Diffraction (UTD)) for radiation, scattering, microwave circuits and EMI/EMC evaluations. Due to computational resources required, full wave solutions such as MoM, though accurate are suitable only for analysing electrically small, but complex problems, whereas asymptotic techniques such PO and UTD, though approximate, are suitable for electrically large structures (100s of wavelengths in size). Dr Jakobus was instrumental in not only developing the hybrid methodologies but for the first time he also integrated these methodologies into a software package that can handle both electrically small and large structures. Hybridisation also provided for the first time multiscale electromagnetic analysis. In this case, some parts of the problem that are complex and electrically small, are analysed by full wave solutions. The rest of structure (that is electrically large) can be analysed via asymptotic solutions. Dr Jakobus' ground breaking contributions led to a new paradigm in

commercial EM simulations, making it possible to include platform effects (such as automobile, aircraft, ships etc.) in evaluating antenna performance (something not possible before).

Awards, publications and memberships

Dr Jakobus obtained his Diploma in Electrical Engineering from the University of Stuttgart, Germany, in 1991 and his PhD from the same university in 1994, respectively. In 1999 he obtained his habilitation and venia legendi (formal qualification as university lecturer) and status “Privatdozent” at the Faculty of Electrical Engineering and Information Technology of the University of Stuttgart, Germany, for the subject “Radio Frequency Technology”. Since 2000 he is with EM Software & Systems where in his roles of Director and FEKO Product Manager he is responsible for the continued development and commercialisation of FEKO. He has more than 150 national and international publications in journals, books and conference proceedings. His research activities were honoured by numerous prizes and awards, amongst others the 1992 VDE Prize of the Verband Deutscher Elektrotechniker, the Research Prize of the Anton- and Klara-Röser Foundation 1995, the DEVMT price 1995 of the German Society for EMC Technology, the 1996 ACES outstanding paper award, and the Heinz Maier-Leibnitz-Prize 1998 of the German Ministry of Education and Research (BMBF). Dr Jakobus is a member of the Informationstechnische Gesellschaft (ITG) in the Verband Deutscher Elektrotechniker e.V. (VDE), the Applied Computational Electromagnetics Society (ACES) and is an elected member of commission B (field and waves) of URSI (Union Radio Scientifique Internationale).

關於 FEKO：

FEKO 是一套結合了矩量法（Method of Moments, MoMs）、 有限元素法（Finite Element Method, FEM）、物理光學方法(Physical Optics, PO)、幾何光學方法（Geometrical Optics, GO）和一致性幾何繞射理論(Uniform Theory of Diffraction, UTD) 的泛用型三維全波電磁軟體。其中並加入了 Multilevel Fast Multipole Method (MLFMM) 等最先進的快速演算法來大量降低矩量法所需的記憶體與計算時間。

FEKO 可以處理種類繁多的電磁問題，小至微波電路，大至汽車、飛機、船艦都可以使用 FEKO 來模擬。

此外、FEKO 具有強大的最佳化設計的功能跟基因演算法，可針對增益、等向性輻射(ISOTROPIC RADIATOR)、RCS、輻射方向圖、阻抗係數、反射係數、近場場值等目標進行最佳化分析，並可以配合一些外掛程式（如 MATLAB, LUA）來做其它更深入的應用。

交通資訊 ：

台灣大學 電機二館 146 教室

http://www.ee.ntu.edu.tw/img/ntu-emap.jpg

電機系館位在下圖中以紅圈圈標示出來的 84 號建築

如何自捷運站或台大辛亥路後門停車場來到本系系館

http://www.ee.ntu.edu.tw/intro_loc.php

從公館捷運站(淡水線)： 1. 自捷運新店線的公館站下車。2. 由銘傳國小出口 (2 號出口) 出捷運站。3.一出捷運站看到羅斯福路就左轉。4. 走到舟山路後左轉。 5. 繼續走個十來分鐘，左轉進台大圖書館 (圖中的 3 號建築) 後面的那條小徑。 6. 繼續走就會遇到本系系館 (圖中的 84 號建築)。

從科技大樓捷運站(木柵線)：1. 自捷運木柵線的科技大樓站下車。 2. 沿復興南路(往和平東路方向)直走。 3. 到辛亥路，從 A3 門進入校園。 4. 朝語言中心 (圖中的 15 號建築)的方向走去。5. 遇到語言中心 (圖中的 15 號建築) 時左轉。 5. 繼續走到底，本系系館就會在您的左手邊 (圖中的 84 號建築)。

從辛亥路後面停車場： 1. 從 A3 門進入校園。 2. 在停車場 (圖中標示為 P 的地方)停車。 3. 朝語言中心 (圖中的 15 號建築)的方向走去。 4. 遇到語言中心 (圖中的 15 號建築) 時左轉。 5. 繼續走到底，本系系館就會在您的左手邊 (圖中的 84 號建築)。