# SEUNG-CHEOL LEE

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## EDUCATION:

**DOCTOR OF PHILOSOPHY**, Electrical Engineering, currently
Expected Graduation Date: June 2007.
The Ohio State University, Columbus, Ohio
**Diss. Topic**: *Highly Convergent Domain Decomposition Methods for Large Electromagnetic Problems*
**Advisor**: Prof. Jin-Fa Lee

**MASTER OF SCIENCE** in Electrical Engineering, March 2003.
The Ohio State University, Columbus, Ohio.
**Thesis title** : *Enhanced Finite Elements Using Hierarchical Higher Order Bases and Inexact Helmholtz Decomposition for Wave Guding Structures*
Advisor: Prof. Jin-Fa Lee

**BACHELOR OF SCIENCE** in Electrical Engineering, March 2000.
Hong-Ik University, Seoul, Korea

## RESEARCH EXPERIENCE:

03/01 to present **Ansoft Corporation Fellow**
ElectroScience Laboratory, The Ohio State University, Columbus, Ohio.

10/00 to 02/01 **Graduate Research Associate**
ElectroScience Laboratory, The Ohio State University, Columbus, Ohio.

04/95 to 06/97 **Military Service**
Yangyang, Korea. Served as full time

## COMPUTER EXPERIENCE:

- Good knowledge of PC's (Windows XP/2000/NT/98/95 and LINUX).
- Programming Languages: C++, C, Fortran 77/90.
- Mathematical Tools: MATLAB and MAPLE V.
- Typesetting/Word Processors: Microsoft Word, Latex

## GRADUATE COURSEWORK:

MAT 601 Mathematical Principles for Scientists I
MAT 602 Mathematical Principles for Scientists II
MAT 603 Mathematical Principles for Scientists III
EE 813 Finite Elements for Electromagnetics
EE 814 Method of Moments in Electromagnetics
EE 815 Advanced Antenna Theory
EE 894P Advanced Integral Equations
CIS 621 Intro. to High-Performance Computing
EE 714 Radar
EE 719 Electromagnetic Field Theory 1
EE 723 Microwave Transistor Amplifiers
EE 810 Electromagnetic Field Theory 2
EE 817 Advanced Electromagnetic Theory 1
EE 818 Advanced Electromagnetic Theory 2
EE 819 Advanced Electromagnetic Theory 3
EE 620 Microelectronics

**JOURNAL PUBLICATIONS:**

S.-C. Lee, M. N. Vouvakis, K. Zhao and J.-F. Lee, "Analyzing Microwave Devices Using a Symmetric Coupling of Finite and Boundary Elements," *International Journal for Numerical Methods in Engineering*, vol. 64, no. 4, pp. 528-546, Sept., 2005.

S.-C. Lee, M. N. Vouvakis and J.-F. Lee, "A Non-Overlapping Domain Decomposition Method with Non-Matching Grids for Modeling Large Finite Antenna Arrays," *Journal of Computational Physics* , vol. 203, pp. 1-21, Oct. 2005.

M. N. Vouvakis, S.-C. Lee, K. Zhao and J.-F. Lee, "A Symmetric FEM-IE Formulation with a Single-Level IE-QR Algorithm for Solving Electromangetic Radiation and Scattering Problems," *IEEE Transactions on Antennas and Propagation*, vol. 52, pp. 3060-3070, Nov. 2004.

S.-C. Lee, J.-F. Lee and R. Lee "Hierarchical Vector Finite Elements for Analyzing Wave Guiding Structures," *IEEE Trans. Microwave Theory and Tech.* , vol. 51, no. 8, pp. 1897-1905, Aug. 2003.

**CONFERENCE PUBLICATIONS:**

S.-C. Lee, K. Zhao, M. N. Vouvaksi, and J.-F. Lee, "Analyzing Commercial Mobile Phones by a Domain Decomposition Approach," *IEEE MTT-S*, June 11-16, San Francisco, CA, 2006.

S.-C. Lee, K. Zhao, M. N. Vouvaksi, and J.-F. Lee, "Modeling Finite Periodic Structures using a Finite Element Domain Decomposition Technique with 2nd Order Transmission Conditions," *IWAT*, Mar. 6-8, White Plains, NY, 2006.

K. Zhao, M. N. Vouvakis, S. M. Seo, S.-C. Lee, and J.-F. Lee, "A Symmetric Domain Decomposition Formulation of Hybrid FEM-BEM Coupling for Electromagnetic Analysis," *(invited paper)*, *EMC Zurich*, Singapore, Feb. 28-Mar. 3, 2006.

K. Zhao, M. N. Vouvakis, S.-C. Lee, and J.-F. Lee, "Solving Electromagnetic Problems Using A Novel Symmetric FEM-BEM Approach," *Compumag*, Shengyang, China, Jun. 26-30, 2005.

K. Zhao, M. N. Vouvakis, S. -C. Lee, and J.-F. Lee, "Domain Decomposition Method in Conjunction with DP-FETI for Modeling Large Finite Arrays," *PIERs*, Nanjing, China, Aug. 28-31, 2004.

K. Zhao, M. N. Vouvakis, S.-C. Lee, and J.-F. Lee, "An Ultimate DDM with Mortar Techniques for Solving Large EM Problems – 1 billion Unknowns on a PC," *PIERs*, Pisa, Italy, Mar. 28-31, 2004.

M. N. Vouvakis, S.-C. Lee, K. Zhao, and J.-F. Lee, "A Symmetric FEM-IE Formulation using a Single Level IE-QR Algorithm," *(Invited paper)*, *in Proceedings of the International Conference on Electromagnetics in Advanced Applications*, Torino, Italy, Vol. 1, pp. 111-114, Sept, 2003.

M. N. Vouvakis, S.-C. Lee, K. Zhao, and J.-F. Lee, "Hybrid FEM/IE Formulation using a Single Level QR Algorithm," EMCC 2003, NASA Langley Research Center, Hampton Virginia, May 20-22, 2003.

M. N. Vouvakis, S.-C. Lee, K. Zhao, and J.-F. Lee, "Speed up the hybrid FEM+IE formulation using a low-rank matrix approximation," *(Invited paper)*, *IEEE Antennas Propagat. Society Internat. Symp. Digest*, Columbus, OH, Vol. 2, pp. 124-127, July, 2003.

M. N. Vouvakis, S.-C. Lee, K. Zhao, and J.-F. Lee, "Hybrid FEM/IE Formulation using a Single-Level Low-Rank IE-QR Algorithm," *(Invited paper)*, Mathematics of Finite Elements and Applications (MAFELAP), Brunel Institute of Computational Mathematics, UK, pp. 109, June 21-24, 2003.

M. N. Vouvakis, S.-C. Lee and J.-F. Lee, "A Non-Overlap Schwarz Method, Hybrid FEM/IE Formulation, for Solving Unbounded EM Problems," *PIERS*, Singapore, Jan. 2003.