

# Curriculum Vitae

**Name:** Andreas G. Yiotis  
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**Date of Birth:** June 14, 1974  
**Marital Status:** Married, one child

## STUDIES

November 2003 **PhD in Chemical Engineering**  
School of Chemical Engineering  
National Technical University of Athens (NTUA)  
  
*Thesis: 'Pore network modeling of drying processes in macroporous materials'*  
*Advisor; prof. Andreas G. Boudouvis*  
*Joint Advising; Dr. Athanassios Stubos (NCSR "Demokritos")*

September 1997 **Bachelor in Chemical Engineering**  
School of Chemical Engineering  
National Technical University of Athens (NTUA)  
  
*grade; 7,39/10*

## PROFESSIONAL AND ACADEMIC EXPERIENCE

January 2005 –  
onward **Post-doctoral research associate**  
Environmental Research Lab, Institute of Nuclear Technology  
National Center for Scientific Research 'Demokritos'

*Research Activities;*

- Lattice Boltzmann modeling of single and multiphase flows in porous media
- Pore network modeling two-phase flow and phase change in porous media
- Parallel programming for computer clusters
- Development and administration of high performance clusters ([Typhoon](#)) for [weather forecasting](#) models

January 2006 –  
December 2007

**Systems Administrator**  
Institute of Nuclear Technology  
National Center for Scientific Research 'Demokritos'

*In charge of network operations for Windows 2003 and Linux Servers*

September 2007

**Visiting Researcher**  
Barcelona Supercomputing Center (BSC) under the program  
Infraestructura Científica y Tecnológica Singular del Estado Español  
(ICTS) which was funded by the Spanish Ministry of Education & Science.

*Optimized parallel MPI algorithms and performed Lattice Boltzmann simulations for two-phase flow in porous media.*

March 2006

**Visiting Researcher (EC funded HPC-Europa program)**  
Departamento de Ingeniería del Terreno y Cartográfica  
Technical University of Catalunya (UPC)

*Hosted by prof. Jesus Carrera*

*Performed parallel Lattice-Boltzmann simulations at MareNostrum supercomputer with more than 4800 processors (Barcelona Supercomputing Center, BSC). Europe's fastest supercomputing facility (<http://www.top500.org>)*

March 2004-  
January 2005

**Assistant Chemist (military service)**  
Elefsina Airbase, 112 Combat Wing  
Hellenic Air Force

*Chemical analysis of jet fuels JP4, JP8, 100LL  
Atomic Absorption Spectrometric analysis of jet engine lubricants*

December 2003

**Visiting Research Assistant**  
Department of Chemical Engineering  
University of Southern California, Los Angeles

*Hosted by prof. Yannis Yortsos*

July 2001 &  
September 2001

**Visiting Researcher & Trainee (EC funded TMR-TRACS program)**  
Edinburgh Parallel Computing Center (EPCC), University of Edinburgh

*Hosted by prof. Ken Sorbie at Herriot-Watt University*

*Attended High Performance Computing and Parallel Programming courses ( OpenMP and MPI)  
Developed parallel algorithms for two-phase flow in pore networks*

October 1998 –  
March 2003

**PhD Scholarship**  
Institute of Nuclear Technology  
National Center for Scientific Research 'Demokritos'

September 1996  
–January 1997

**Undergraduate Research Assistant**  
Institute of Physical Chemistry

## National Center for Scientific Research 'Demokritos'

Developed pore network modeling computer programs for the EC funded programme Joule (contract JOF3-CT95-0008) "Optimal Massive Gas Injection Conditions for Oil Recovery Enhancement by Diffusion in Fractured and Heterogeneous Reservoirs" (MAGIC-OR)

Partners; Institut Francais du Petrol (IFP), Institut de Physique du Globe de Paris (IPGP), Institut for Energiteknikk (IFE)

### PAPERS IN REFEREED JOURNALS

- 1 Kikkinides, E.S., Yiotis, A.G., Kainourgiakis, M.E., Stubos, A.K., "Thermodynamic consistency of liquid-gas lattice Boltzmann methods: Interfacial property issues", *Physical Review E*, 78(3), 036702 (2008).
- 2 Yiotis, A.G., Tsimpanogiannis, I.N., Stubos, A.K., Yortsos, Y.C., "Coupling between internal and external mass transfer during drying of a porous medium", *Water Resources Research*, 43, W06403, doi:10.1029/2006WR005558 (2007).
- 3 Psihogios, J., Kainourgiakis, M.E., Yiotis, A.G., Papaioannou, A., Stubos, A.K., "A Lattice Boltzmann study of Non-Newtonian flow in reconstructed porous domains", *Transport in Porous Media*, 70(2), 279-292 (2007).
- 4 Yiotis, A.G., Psihogios, J., Kainourgiakis, M.E., Papaioannou, A., Stubos, A.K., "A Lattice-Boltzmann study of viscous coupling effects in immiscible two-phase flow in porous media", *Colloids and Surfaces A*, 300(1-2), 35-49 (2007).
- 5 Yiotis A.G., Tsimpanogiannis I.N., Stubos A.K., Yortsos Y.C., "Pore network study of characteristic drying regimes", *J Colloid Interface Sci*, 297 (2), 738-748 (2006)
- 6 Yiotis, A.G., Stubos, A.K.; Boudouvis, A., Tsimpanogiannis, I.N. & Yortsos, Y.C., "Pore Network Modelling of Isothermal Drying in Porous Media", *Transport in Porous Media*, 58 (1-2), 63-86 (2005) (Invited paper)
- 7 Yiotis, A.G., Boudouvis, A.G, Stubos, A.K, Tsimpanogiannis, I.N. & Yortsos, Y.C., "Effect of liquid films on the drying of porous media", *AIChEJ*, 50(11), 2721-2737 (2004).
- 8 Yiotis A.G., Boudouvis A.G, Stubos A.K., Tsimpanogiannis I.N., Yortsos Y.C., "The effect of liquid films on the isothermal drying of porous media", *Physical Review E*, 68(3), 037303 (2003)
- 9 Yiotis A.G., Stubos A.K., Boudouvis A.G., Yortsos Y.C., "A 2-D pore-network model of the drying of single-component liquids in porous media", *Advances In Water Resources*, 24, 439-460 (2001) (Invited paper)

## BOOK CHAPTERS

- 1 Yiotis, A.G., Stubos, A.K., Boudouvis, A., Tsimpanogiannis, I.N. & Yortsos, Y.C., "Pore Network Modelling of Isothermal Drying in Porous Media", in *Upscaling Multiphase Flow in Porous Media: From Pore to Core and Beyond*, Das, D.B., Hassanizadeh, S.M. (Eds), Springer (2005).
- 2 Yiotis, A.G., Stubos, A.K., Boudouvis, A.G., Tsimpanogiannis, I.N & Yortsos, Y. C. "Modeling of Drying Processes in Pore Networks." In *Mathematics in Industry. Volume 8: Progress in Industrial Mathematics at ECMI 2004*, A. Di Bucchianico et al., (Eds), Springer-Verlag, Berlin, Germany (2006)
- 3 Yiotis, A.G., Kainourgiakis, M.E. & Stubos, A.K., "A Lattice-Boltzmann study of immiscible two-phase flow in pore networks", in *Science and Supercomputing in Europe*, Alberigo, P., Erbacci, G., Garofalo, F. (Eds), CINECA (2006).

## PAPERS IN CONFERENCE PROCEEDINGS

- 1 A.G. Yiotis, M.E. Kainourgiakis, A.K. Stubos, "Lattice Boltzmann modeling of residual NAPL's flow in underground porous domains" , *Proceedings of the European Geosciences Union, Vienna, Austria, 15-20 April 2007.*
- 2 N.I. Papadimitriou, I.N. Tsimpanogiannis, A.G. Yiotis, T.A. Steriotis, A.K. Stubos, "On the use of the Kihara potential for hydrate equilibrium calculations", *Proceedings of the 11th International Conference on the Physics and Chemistry of Ice (PCI), Bremerhaven, Germany, July, 2006*
- 3 A.G. Yiotis, J. Psihogios, M.E. Kainourgiakis, A. Papaioannou, A.K. Stubos, "A Lattice-Boltzmann study of viscous coupling effects in immiscible two-phase flow in porous media" , *Poster presentation at the TRI/Princeton Workshop, Princeton, NJ, USA, 21-23 June 2006*
- 4 A.G. Yiotis, I.N. Tsimpanogiannis, A.K. Stubos, Y.C. Yortsos, "Pore-network modelling of convective drying", In *CD-Rom proceedings of the CMWR-XVI, Copenhagen, Denmark, 19-22 June 2006.*
- 5 A.G. Yiotis, A.K. Stubos, I.N. Tsimpanogiannis, Y.C. Yortsos, "Three-dimensional modelling of the evaporation of volatile hydrocarbons from heterogeneous porous media", SPE 97032, *Proceedings of the Society of Petroleum Engineers Annual Technical Conference & Exhibition, Dallas, Texas, USA, October 2005.*
- 6 A.G. Yiotis, I.N. Tsimpanogiannis, A.K. Stubos, Y.C. Yortsos, "Effect of liquid films in the convective drying of porous materials", *Proceedings of the American Geophysical Union, Fall Meeting, 2005*
- 7 A.G. Yiotis, A.G. Boudouvis, A.K. Stubos, I.N. Tsimpanogiannis, Y.C. Yortsos , "Capillarity-Induced Flow In Wetting Liquid Films: Implications for the Recovery of

*Volatile Oils From Fractured Porous Media*", SPE 90744, Proceedings of the Society of Petroleum Engineers Annual Technical Conference & Exhibition, Houston, Texas, USA, September 2004.

- 8 A.G. Yiotis, A.G. Boudouvis, A.K. Stubos, I.N. Tsimpanogiannis, Y.C. Yortsos, "Modeling Viscous Flow Through Liquid Films In Isothermal Drying Of Porous Media", Presented at the AIChE 2003 Annual Meeting, San Francisco, California, USA, November 2003.
- 9 A.N. Spyropoulos , A.G. Yiotis , and A.G. Boudouvis, "Interfacial Instability and Patterning in Magnetic Field-Fluid Interaction", Proceedings of the Fifth World Congress on Computational Mechanics, Vienna, Austria, 7-12 July 2002.
- 10 A.G. Yiotis, A.K. Stubos, A.G. Boudouvis, Y.C. Yortsos , "A pore network model for drying processes in porous media", Presented at the AIChE 2001 Annual Meeting, Reno, Nevada, USA, November 2001.
- 11 A.G. Yiotis, A.K. Stubos, A.G. Boudouvis, Y.C. Yortsos, "A pore network model for drying processes in porous media", Proceedings of the 8th Symposium on Multiphase Transport in Porous Media, New York, USA, November 2001.
- 12 A.G. Yiotis, A.K. Stubos, A.G. Boudouvis , "Recovery of Volatile Liquids from Pore Networks with Diffusion and Convection", Proceedings of the 3rd National Conference of Chemical Engineering, Athens, Greece, May 2001.
- 13 A.G. Yiotis, A.K. Stubos, A.G. Boudouvis , "A pore network model for drying processes in porous media", In CD-Rom Proceedings of the European Congress on Computational Methods in Applied Sciences and Engineering – ECCOMAS 2000, E. Onate et al., Eds , Barcelona, Spain, September 2000.
- 14 A.G. Yiotis, A.K. Stubos, A.G. Boudouvis, "Numerical Simulation of Drying Processes in pore networks" Proceedings of the 2nd National Conference of Chemical Engineering, Thessaloniki, Greece, May 1999.

## INVITED TALKS

*“A Lattice Boltzmann model for the flow of Newtonian and Non-Newtonian fluids in Reconstructed Porous Media”*

*Departamento de Ingeniería del Terreno y Cartográfica, Universitat Politècnica de Catalunya, Barcelona, Spain, March 23, 2006.*

## REVIEWER IN INTERNATIONAL JOURNALS

- 1. Journal of Colloid and Interface Science*
- 2. Society of Petroleum Engineering Journal*
- 3. Colloids and Surfaces A*
- 4. International Journal of Heat and Mass Transfer*
- 5. Brazilian Journal of Chemical Engineering*

## COMPUTER SKILLS

*Programming languages: Fortran 90 (excellent), Visual Basic (Very good)*

*Operating Systems: Windows 2003 Server, Windows XP, Linux, Unix*

*Parallel programming: Message Passing Interface (MPI) (excellent), OpenMP (excellent)*

*Web platforms: Dreamweaver, PHP, MySQL*

## LANGUAGES

*Greek (Native)*

*English (Certificate of Proficiency, grade B, University of Cambridge, 1990)*