

CURRICULUM VITAE

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Education

- Diploma Degree in Chemical Engineering, National Technical University of Athens, 1967.
- M.A. in Business Administration, Athens School of Economics, 1970.
- M.Sc. Department of Chemical Engineering of Imperial College of Science and Technology - University of London, 1973.
- Ph.D., Department of Chemical Engineering of Imperial College of Science and Technology - University of London, 1974.
- Postdoctoral Researcher, Department of Mechanical Engineering of Imperial College - Fluid Dynamics and Thermodynamics Section.

Experience

In 1975, he started working for CHAM Ltd, (Concentration Heat and Momentum, Limited) London, England, the world-leader in fluid-flow software, that was then developing unique and pioneering computational methods to solve problems of Heat, Mass and Momentum Transfer, with turbulence and chemically reacting species. In that company he worked first as a Group Leader of the Aerospace Group (1976) and then, from 1977 onwards, as the Manager of the Applications Team, being responsible for all the Application Groups that were carrying out projects for research centres and industry, on various Fluid Mechanics, Thermodynamics and Transport Phenomena problems in Aerospace, Combustion, Environmental and Process Engineering. He worked for CHAM Ltd until 1984. Since 1974 he has served as Technical Consultant for many Research Centres, State Institutions and Industries in the United Kingdom, the United States, Germany, France, Japan, etc.

Fields of interest

Professor Markatos' main research interest is in the mathematical modelling of Transport Phenomena, Fluid Mechanics, Thermodynamics and Physical Processes like Fluid Flow (Laminar and especially Turbulent), Heat and Mass Transfer, Combustion, distillation, filtration, pollutants dispersion etc. and in the solution of the corresponding differential equations with numerical methods on Computers.

He is also interested in the development of algorithms to study environmental and industrial processes with particular emphasis on modeling of major chemical industrial accidents.

His research team involves people who are specialists in simulation, design of engineering equipment and processes, and in chemical industrial accident management.

Books

1. N.C. Markatos, M. Gross, D.G. Tatchell (Eds), "Numerical Simulation of Fluid Flow and Heat Mass Transfer Processes" Springer-Verlag, 1986.
2. N.C. Markatos, "Computational Fluid Mechanics", Symeon Editions, Athens, pp 272, 1988.
3. N.C. Markatos, "Advanced Transport Phenomena", Symeon Editions, Athens, pp 139, 1990.
4. N.C. Markatos (Ed.), "Computer Simulation of Internal Combustion Engines", Springer-Verlag, 1990.
5. N.C. Markatos, D. Assimakopoulos, Athens, "Computational Fluid Dynamics", Papatotiriou Editions, Athens, 1995.

Publications

In Journals

1. G.M. Stavrakakis, D.P. Karadimou, P.L. Zervas, H. Sarimveis, N.C. Markatos, Selection of window sizes for optimizing occupational comfort and hygiene based on computational fluid dynamics and neural networks, *Building and Environment* 46 (2), pp. 298-314 (2011).
2. E.D. Mehleri, P.L. Zervas, H. Sarimveis, J.A. Palyvos, N.C. Markatos, A new neural network model for evaluating the performance of various hourly slope irradiation models: Implementation for the region of Athens, *Renewable Energy* 35 (7), pp. 1357-1362 (2010).
3. E.D. Mehleri, P.L. Zervas, H. Sarimveis, J.A. Palyvos, N.C. Markatos, N.C. Determination of the optimal tilt angle and orientation for solar photovoltaic arrays, *Renewable Energy* 35 (11), pp. 2468-2475 (2010).
4. T.C. Xenidou, N. Prud'homme, C. Vahlas, N. C. Markatos, A.G. Boudouvis, Reaction and transport interplay in Al MOCVD investigated through experiments and computational fluid dynamic analysis, *J. Electrochemical Society*, 157(12), pp. D633-D641 (2010).

5. G.M. Stavrakakis, P.L. Zervas, H. Sarimveis, N.C. Markatos, "Development of a computational tool to quantify architectural-design effects on thermal comfort in naturally ventilated rural houses", *Building and Environment* 45 (1), pp. 65-80 (2010).
6. Markatos, N.C., Christolis, C., Argyropoulos, C., "Mathematical modeling of toxic pollutants dispersion from large tank fires and assessment of acute effects for fire fighters", *International Journal of Heat and Mass Transfer*, 52 (17-18), pp. 4021-4030 (2009).
7. Hasikos, J., Sarimveis, H., Zervas, P.L., Markatos, N.C., "Operational optimization and real-time control of fuel-cell systems", *Journal of Power Sources*, 193 (1), pp. 258-268 (2009).
8. Stavrakakis, G.M., Markatos, N.C., "Simulation of airflow in one- and two-room enclosures containing a fire source", *International Journal of Heat and Mass Transfer*, 52 (11-12), pp. 2690-2703 (2009).
9. Zervas, P.L., Tatsis, A., Sarimveis, H., Markatos, N.C.G., "Development of a novel computational tool for optimizing the operation of fuel cells systems: Application for phosphoric acid fuel cells", *Journal of Power Sources*, 185 (1), pp. 345-355 (2008).
10. Zervas, P.L., Sarimveis, H., Palyvos, J.A., Markatos, N.C.G., "Prediction of daily global solar irradiance on horizontal surfaces based on neural-network techniques", *Renewable Energy*, 33 (8), pp. 1796-1803 (2008).
11. Zervas, P.L., Sarimveis, H., Palyvos, J.A., Markatos, N.C.G., "Model-based optimal control of a hybrid power generation system consisting of photovoltaic arrays and fuel cells", *Journal of Power Sources*, 181 (2), pp. 327-338 (2008).
12. Stavrakakis, G.M., Koukou, M.K., Vrachopoulos, M.Gr., Markatos, N.C., "Natural cross-ventilation in buildings: Building-scale experiments, numerical simulation and thermal comfort evaluation", *Energy and Buildings*, 40 (9), pp. 1666-1681 (2008).
13. Karabelas, S.J., Markatos, N.C., "Water vapor condensation in forced convection flow over an airfoil", *Aerospace Science and Technology*, 12 (2), pp. 150-158 (2008).
14. Politis, A.K., Stavropoulos, G.P., Christolis, M.N., Panagopoulos, P.G., Vlachos, N.S., Markatos, N.C., "Numerical modelling of simulated blood flow in idealized composite arterial coronary grafts: Transient flow", *Journal of Biomechanics*, 41 (1), pp. 25-39 (2008).
15. Georgiadou, P.S., Papazoglou, I.A., Kiranoudis, C.T., Markatos, N.C., "Modeling emergency evacuation for major hazard industrial sites", *Reliability Engineering and System Safety*, 92 (10), pp. 1388-1402 (2007).
16. Xenidou, T.C., Boudouvis, A.G., Markatos, N.C., Samélor, D., Senocq, F., PrudHomme, N., Vahlas, C., "An experimental and computational analysis of a MOCVD process for the growth of Al films using DMEAA", *Surface and Coatings Technology*, 201 (22-23 SPEC. ISS.), pp. 8868-8872 (2007).
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18. Vescoukis, V., Olma, T., Markatos, N., "Experience from a pilot implementation of an "in-situ" forest temperature measurement network", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC*, art. no. 4393995, (2007).
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180. A.M. Abdelmeguid, N.C. Markatos, D.B. Spalding, "A method of Predicting Three-Dimensional Turbulent Flows around Ships' Hulls", Proc. of the Int. Symposium on Ship Viscous Resistance, SSPA Goteborg, Sweden, pp 3.1-3.24, Gotab Kungälv Ltd., August 1978.
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185. N.C. Markatos, D.B. Spalding, D.G. Tatchell, N. Vlachos, "A solution Method for Three-Dimensional Turbulent Boundary Layers on Bodies of Arbitrary Shapes", Proc. of First Int. Conference on Applied Numerical Modelling, University of Southampton, pp 343-362 and pp 690-693, Pentech Press Ltd., 1977.
186. N.C. Markatos, "A theoretical Investigation of Buoyancy-Induced flow stratification in the cylindrical outlet plenum of a liquid-metal-cooled fast breeder reactor", Proc. of the Conference on "Turbulent Buoyant Convection", Int. Centre for Heat and Mass Transfer, Yugoslavia, Hemisphere Publ. Corp., pp 529-543, 1976.

Member of Editorial Board of Journals

1. J. Applied Mathematical Modelling (editor)
2. Int. J. of Numer. Meth. for Heat and Fluid Flow (member)
3. Revue Generale du Thermique (member)
4. Int. J. Numer. Meths. in Fluids (member)

Invited Talks

1. N.C. Markatos, "PHOENICS - A general Computer program for simulation of fluid flow and heat-mass transfer", A Lecture Course, Chalmers University, Gottemborg, Sweden, 1982, 1986.
2. N.C. Markatos, "Computer Modelling and Simulation", A Lecture Course, Stuttgart University, Germany, 1986, 1988.
3. D.B. Spalding, N.C. Markatos, "Computer Simulation of multiphase flows", A course of 12 Lectures, Imperial College Report CFD/83/4, July 1983.
4. N.C. Markatos, "Fluid-Dynamics. Theory and Practice", A lecture Course, University of Hofei, China, 1984.
5. N.C. Markatos, "PHOENICS - A general fluid-flow program", A lecture Course and Workshops, General Electric, Shenektady, New York, 1984.
6. N.C. Markatos, "Mathematical Modelling of Fluid Flow and Heat-Mass Transfer Phenomena", A lecture Course, Tokyo and Yokohama, Japan, 1982-1985.
7. N.C. Markatos, Visiting Ressearch Fellow, University of Greenwich, London UK, School of Mathematics and Scientific Computing, 1989.