

Dr. STAVROS TSANTILIS

Chemical / Process Excellence Engineer

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CURRICULUM VITAE / RESUME

SHORT PROFILE

- Broad Chemical / Process Engineering Background
- Development of Novel Material Products and Processes
- Statistical Design of Experiments (DoE)
- 6Sigma and Lean Manufacturing Practices (Certified)
- Strong Publication and Article Reviewing Record
- Teaching and Coaching Experience
- Ph.D. on (nano)Particle Dynamics

ACADEMIC EDUCATION

1999-2002	Swiss Federal Institute of Technology (ETH), Zurich	Ph.D.
1996-1998	University of Cincinnati, Ohio, USA (GPA: 3.8/4)	M.Sc.
1991-1996	Aristotle University of Thessaloniki, Greece (Grade: 9/10)	Diploma

LANGUAGES

English:	Fluent written and spoken
German:	Fair written and oral skills, currently attending courses
French:	Basic written and oral skills
Greek:	Mother tongue

SKILLS

Technical	Particle Dynamics (Simulations and Experiments) Mass-Heat transfer Statistics (incl. Process Capability, GR&R analysis, DoE) Applied Mathematics Reaction Engineering Design Physical Chemistry Fiber/Textile technology Acoustics
IT	Programming skills: Fortran, Mathematica Operating Systems: MS Windows, Linux Applications: MS Office, SigmaPlot, MiniTab CFD & DesignTools: Fluent, CadFem Process Dynamics: BrightRivers, iGrafx, Vensim
General	Excellent writing and communication skills Group supervision, Lean and SixSigma Principles Close interaction with experimentalists and shop floor operators Collaboration with researchers from different disciplines

PROFESSIONAL EXPERIENCE

- 11/2007-present **RIETER Automotive Management, Winterthur, Switzerland**
Senior Research and Development Engineer
- **Product Development**
Development of automotive parts (interior floor, deck side trim, inner dash) with attractive acoustic (sound absorption/insulation) and thermal properties.
Investigation of innovative, cost effective raw materials (fibres, foams, heavy layers, felts, scrims) for automotive acoustic/thermal management.
 - **Technology Management Projects**
Deployment of innovative technological solutions (technology transfer investigations).
Design of Experiments (DoE), Statistical Analysis and Optimization of novel manufacturing processes.
- 09/2005-09/2007 **Cilag (Johnson & Johnson), Schaffhausen, Switzerland**
Senior Process Excellence Engineer
- **Tactical Level Projects** (1-2 year horizon)
Business process excellence and strategic development for the European division of Johnson & Johnson pharmaceuticals production: Process dynamics and optimization (using BrightRivers-D3GO software) of packaging of solid pharma products (in blisters and bottles). Analysis of capacity sharing scenaria between sites as well as between lines within given sites.
Development and analysis of Value Stream Maps (using iGrafx commercial software) for priority pharma products. Identification of areas of improvement and project assignment.
 - **Operational Level Projects** (less than 1 year horizon)
Coaching related to 6Sigma process statistical analysis (using Minitab commercial software) and Lean manufacturing practices (6 projects).
Delivery of 6Sigma (9 day) green belt courses (Cilag, Schaffhausen-CH, Spring 2006; Alza, Cashel-IR, Summer 2006).
Preparation and delivery of (1-2 day) seminars on Lean Manufacturing Practices (5 seminars).
 - **6Sigma and Lean Projects**
Six Sigma (green belt) project: Improvement of the predictive indicator for production of hydrogen peroxide cassettes including gage reproducibility and repeatability (GR&R) studies of measuring devices.
Assessment of implementation of a Pull-Kanban (make to order) system in production of solid pharma products (tablets).
Execution of 5S audits in solids manufacturing areas, quality control (QC) laboratories and maintenance workshops.

- 04/2005-07/2005 **SWISS FEDERAL LABORATORIES (EMPA), Dübendorf, Switzerland**
Senior Research Engineer
- Carrying out experiments on efficient synthesis of tailor made nano-materials using novel reactors.
 - Co-work in the definition of optimal operating conditions with industry.
 - Supervising student diploma thesis projects.
- 06/2004-07/2005 **PARTICLE TECHNOLOGY LABORATORY (ETH), Zurich**
Senior Research Consultant
- Co-authoring and writing scientific articles on particle dynamics.
 - Reviewing of scientific articles on theoretical and experimental aspects of aerosol formation and growth.
- 06/2002-06/2004 **PARTICLE TECHNOLOGY LABORATORY (ETH), Zurich**
Senior Research Associate
- **Projects**
KTI Final Report on Large Scale Molecular Dynamics Simulations of Nano-Scale Systems (No 5978.2 / 6740.1, pp. 18-26, 2004).
 - **Publications and Conference Presentations**
Refereed publications, presentation of research at international conferences (see list of publication and conference presentations).
 - **Supervisor of Student Research Projects**
 - Camenzind, A. (Semester Project, winter semester 2003): Description of the shape evolution of airborne particles.
 - Grass, R. (Semester Project, winter semester 2003): Distinction between soft and hard agglomerates in aerosol processes.
 - Loosli, Y. (Semester Project, summer semester 2003): Monte-Carlo simulation of Brownian coagulation of particles.
 - Rothenfluh, T. (Semester Project, summer semester 2003): Method of moments for particle dynamics.
 - **Teaching Assistant**
 - Mass Transfer (winter semesters, 1999-2003): Coordination of teaching assistants, preparation and presentation of lectures and exercises, preparation and correction of exams.
 - CFD Laboratory (summer semesters, 2000-2004): Preparation of case studies (flow of Newtonian fluids in tubes and jets) for the introduction of undergraduate students into CFD calculations using FLUENT.
 - **Scientific Article Reviewing**
 - AIChE Journal (2)
 - Aerosol Science and Technology (7)
 - Chemical Engineering Science (3)
 - Computers and Chemical Engineering (1)
 - Icarus (1)
 - Industrial and Engineering Chemistry Research (2)
 - Journal of Aerosol Science (17)
 - Journal of Colloid and Interface Science (1)
 - Journal of Crystal Growth (1)
 - Journal of Nanoparticle Research (1)
 - Materials Science Forum (1)

EDUCATIONAL EXPERIENCE

01/1999-06/2002 **PARTICLE TECHNOLOGY LABORATORY (ETH), Zurich**
Ph.D. Thesis (Mechanical-Process Engineering)

- **Supervision of Student Diploma Theses**
 - M. Opitz (Diploma Thesis, spring 2000). Simulation of synthesis of nanoparticles in flame reactors using CFD.
 - Bieri, N. (Diploma Thesis, spring 1999). Experimental and theoretical study of premixed and diffusion aerosol flame reactors.
- **Teaching Assistant**
Introduction to Finite Elements (summer semester, 2000). Preparation and correction of exercises.
- **Technical Consulting**
Bayer A.G. (Leverkusen, Germany), spring 1999. Simulation of particle dynamics in aerosol jet reactors.

09/1996-12/1998 **UNIVERSITY OF CINCINNATI, Cincinnati OH, USA**
M.Sc. Thesis (Chemical Engineering)

- **Teaching Assistant**
Unit Operations Laboratory (fall 1997, winter 1998). Supervision of undergraduate students during unit operations laboratory exercises.
- **Technical Consulting**
Particle Technology Inc. (Baltimore, MD, USA), summer 1997. CFD simulation of hot wall furnace reactors (using Fluent).

09/1991-06/1996 **ARISTOTLE UNIVERSITY OF THESSALONIKI, Greece**
Diploma (Chemical Engineering)

- **Projects**
 - Diploma Thesis (spring 1996). Finite Element simulation of a sensor for measuring thermal conductivities of solids.
 - Design Project (autumn 1995 - winter 1996). Feasibility study and design of an industrial unit for regeneration of used lubricants.
- **Apprentice**
Aramco-Motor-Oil Refineries, Corinth, Greece (august 1993 and july 1994). Reformer unit, control room operations.

AWARDS - DISTINCTIONS

2007	Certified Six Sigma Engineer, Cilag Johnson & Johnson, Switzerland
2004	Best Poster Award, PARTEC2004 International Conference for Particle Technology, Nuremberg, Germany 16–18 March, 2004.
1996-1998	University Graduate Scholarship, University of Cincinnati.
1995-1996	Three-member team design project that <i>ranked 1st</i> out of 20. Project submitted to LPC-HELLAS (CYCLON) SA.
1994-1995	Greek National Technical Association Fellowship, Technical Chamber of Greece (TEE), Athens, Greece.
1994-1995	State Scholarship, Foundation of State Scholarships (IKY), Athens, Greece (3 % of proposals receive this award).
1992-1993	State Scholarship, Foundation of State Scholarships (IKY), Athens, Greece (3 % of proposals receive this award).

REFEREED PUBLICATIONS

1. Tsantilis, S., Pratsinis, S. E., Haas, V. (1999) Simulation of Synthesis of Palladium Nanoparticles in a Jet Aerosol Flow Condenser. *J. Aerosol Sci.*, **30**:785-803.
2. Tsantilis, S., Pratsinis, S. E. (2000) Evolution of Primary and Aggregate Particle-Size Distributions by Coagulation and Sintering. *AIChE J.*, **46**:407-415.
3. Pratsinis, S. E., Arabi-Katbi, O., Megaridis, C. M., Morrison Jr., P. W., Tsantilis, S., Kammler, H. K. (2000) Flame Synthesis of Spherical Nanoparticles. *J. Metastable Nanocrystalline Materials*, **8**:511-518.
4. Tsantilis, S., Briesen H., Pratsinis, S. E. (2001) Sintering Time for Silica Particle Growth. *Aerosol Sci. Technol.*, **34**:237-246.
5. Spicer, P. T., Chaoul, O., Tsantilis, S., Pratsinis, S. E. (2002) Titania Formation by $TiCl_4$ Gas Phase Oxidation, Surface Growth and Coagulation. *J. Aerosol Sci.*, **33**:17-34.
6. Wegner, K., Walker, B., Tsantilis, S., Pratsinis, S. E. (2002) Design of Metal Nanoparticle Synthesis by Vapor Flow Condensation. *Chemical Eng. Sci.*, **57**: 1753-1762.
7. Tsantilis, S., Kammler, H. K., Pratsinis, S. E. (2002) Population Balance Modeling of Flame Synthesis of Titania Nanoparticles. *Chemical Eng. Sci.*, **57**: 2139-2156.
8. Tsantilis, S., Pratsinis, S. E. (2004) Narrowing the Size Distribution of Aerosol-made Titania by Surface Growth and Coagulation. *J. Aerosol Sci.*, **35**: 405-420.
9. Tsantilis, S., Pratsinis, S. E. (2004) Soft-, Hard- and Non-Agglomerate Aerosols made at High Temperatures. *Langmuir*, **20**: 5933-5939.
10. Tsantilis, S. (2004) Population Balance Modeling of Synthesis of Nanoparticles in Aerosol Flame Reactors. *Lecture Notes Comput. Sci. Eng.*, Springer, **39**:247-257.
11. Grass, R. N., Tsantilis, S., Pratsinis, S. E. (2006) Hard and Soft TiO_2 Agglomerates Made at High Temperature. *AIChE J.*, **52**: 1318-1325 (*cover page article*).

MAJOR CONFERENCES (oral presentations)

More than 10 presentations in major international conferences.

1. Tsantilis, S., Pratsinis, S. E., and Haas, V., "Simulation of Synthesis of Palladium Nanoparticles in a Jet Aerosol Flow Condenser," 5th International Aerosol Conference, Edinburgh Scotland (14 – 18 September, 1998).
2. Tsantilis, S., and Pratsinis, S. E., "Aggregate Growth by Coagulation and Sintering," Engineering Foundation Conference on Population Balance Modeling of Particulate Systems, Kailua-Kona Hawaii, USA (23 - 28 January, 2000), *Invited Talk*.
3. Tsantilis, S., and Pratsinis, S. E., "Narrow Particle Size Distributions by Coagulation and Surface Growth," European Aerosol Conference, Madrid, Spain (31 August - 5 September, 2003).
4. Tsantilis, S., and Pratsinis, S. E., "Hard or Soft Agglomerates and Non-Agglomerates during Aerosol Synthesis," AIChE Annual Meeting, San Francisco, USA (16 - 21 November, 2003).

OTHER INTERESTS

Hiking, biking, skiing, swimming, travelling, soccer, literature, geography, history, theater.

REFERENCES: Available on request.