

CURRICULUM VITAE Prof. Dr Dr h.c. Tapio Salmi

1 NAME

Tapio Salmi

2 BIRTH, NATIONALITY, RESIDENCE

Birth date and -place: 07.10.1957, Pargas, Finland, Nationality: Finnish, Residence: Turku/Åbo Finland

3 DEGREES AND COMPETENCES

2025 **Doctor honoris causa** at Tallinn University of Technology (September 2025) (www.taltech.ee)

2024 **Doctor honoris causa** in technology (May 2024) Faculty of Technology, University of Oulu (www.oulu.fi)

1986 **Doctor of Science** Chemical Engineering, Åbo Akademi University (AAU) (www.abo.fi) (with distinction, highest mark), Doctoral thesis: *Modelling and simulation of chemical reactions: a mechanistic point of view* (accepted with honours), 1984 **Lic.Tech.**, Chemical Engineering, AAU (with distinction), 1980 **M.Sc.**, Chemical Engineering, AAU, 1990 Docent in Chemical Reaction Engineering, AAU, 1990, Competent for Full Professorships in General Chemical Technology (2nd ranking) (AAU, 1990), Industrial Chemistry (AAU, 1991), Chemical Reaction Engineering (1st ranking) (University of Lund, 1997), Chemical Reaction Engineering (1st ranking) (AAU, 1997)

4 OTHER EDUCATION

High-school final exam (Turun Suomalainen Yhteiskoulu (1976 with distinction, 6 laudatur (summa cum laude) in national maturity exam); courses in English language and Numerical methods in physics (University of Turku, in 1980's); courses in Essay writing at Oriveden Opisto (2002-2026)

5 LANGUAGE SKILLS

Language skills: Swedish and Finnish native (Finnish State Exam of complete skills in Finnish and Swedish), German (7 years at school; several visits to Germany, intensive contacts to German universities and research institutes), English (among the daily working languages, studies at Turku University, *pro exercitio* exam), French (three years at school and numerous language courses, often a daily working language at ÅA); Danish (*autodidact*, post-doc research visit to Denmark and regular Scandinavian contacts), Estonian (*autodidact*, part-time Estonian resident, participation in Estonian scientific community events, such as conferences in Tallinn, lectures in Estonian language)

6 PRESENT EMPLOYMENT RELATIONSHIPS

2009-2013, 2019-2023 **Academy Professor**, appointed by Academy of Finland, highest scientific position in Finland, 1998- **Professor**, Chemical Reaction Engineering, Åbo Akademi University (AAU), 2024- **Visiting professor**, Università di Napoli 'Federico II', 2024-

7 PREVIOUS EMPLOYMENT RELATIONSHIPS

1998-1999 **Senior Scientist**, Academy of Finland, 1991-1997 **Associate Professor**, Industrial Chemistry, AAU, 1989-1991, **Associate Professor (acting)**, Industrial Chemistry, AAU, 1987-1991, **Senior Assistant**, Industrial Chemistry, AAU, 1984-1987, **Assistant**, Industrial Chemistry, AAU, 1983-1985, **Teacher**, Mathematics, AAU, 1983-1984, **Researcher**, Neste Oy Foundation.

Research visits abroad

Guest researcher, Institutet for kemiteknik, Danmarks tekniske højskole, Lyngby (at Professor John Villadsen), Study visit to USA, Engelhard Laboratory, University of Houston, Texas A&M University, Shell Research Center (Houston), Guest researcher, Institute of Chemical Process Fundamentals, Czechoslovak Academy of Sciences (at Dr Petr Schneider), Study visit to USA och Canada, University of California,; Northwestern University, Evanston, Queen's University, Kingston; University of Minnesota, , Shorter research visits to France, Germany, Italy and Portugal, Guest researcher, Zelinskii Institute of Organic Chemistry, Russian Academy of Sciences (2021-22, 2 months (at Professor Leonid M. Kustov, Megagrant project; interrupted because of the Russian military aggression against Ukraine). Università di Napoli 'Federico II', research and teaching visits since 2018.

8 RESEARCH FUNDING AND RESEARCH LEADERSHIP

Project funding granted from 2003 onwards approximately 15 M€. **Main funding (examples):** "Continuous, intensified production of chemicals", funding from Academy of Finland (the research agency of Finland) for five years (1.1.2009-31.12.2013), approved full-cost model budget 1082k € (incl. 19% own funding); "Multiscale modelling of chemical processes" funding from Academy of Finland (the research agency of Finland) for four years (1.9.2010-31.8.2014), approved full-cost model budget 405k € (incl. 19% own funding). Collaboration project between two universities and VTT (State research centre of Finland); Other major projects and networks: Gold catalysis in microreactors (Academy of Finland) (about 1000k€), POKE network for PhD

students in Nordic-Baltic region (Finnish Cultural Foundation 200k€); Academy Professor's grant "Towards a deep understanding of multiphase molecular processes by application of transient experimental techniques and mathematical modelling" funding from Academy of Finland for five years (2019-2024), 1881k€, Academy of Finland Project Grant "Multiscale techniques for production methods of industrial chemicals – new structures and mathematical modelling" (2024-2028), 500k€. "Intensified catalysis through combined 3D printing and ALD" Academy of Finland (2026-2030) 500k€, ReLion- European Union Horizon research grant 2026, 500k€ (Preparation of precursors for non-isocyanate polyurethanes (NIPUs)).

Supervisor of 76 doctoral theses during 1994-2026: Several theses have obtained national and international prizes and awards (J. Romanainen, L. P. Lindfors, S. Toppinen, J. Lehtonen, E. Toukonitty, P. Mäki-Arvela, A. Bernas, D. Kubicka, H. Grénman, T. Kilpiö, M. Golets, T. Riittonen, S. Schmidt, A. Freites Aguilera, S. Saeid, M. Alvear Cabezon). Supervisor of 24 licentiate theses and about 80 master's theses.

9 PEDAGOGIC MERITS AND EXPERIENCE

Teacher in chemical reaction engineering and industrial chemistry at AAU since 1981. Teaching experience from abroad: teacher within the framework of Erasmus co-operation at Normandie Université –INSA-Rouen, Università di Padova, Università di Napoli 'Federico II' and National Technical University of Athens, Universidad Valladolid, Umeå universitet (typically intensive courses in chemical reaction engineering for advanced undergraduate level and post-docs). Teacher in green chemistry principles for school children, Centre Sunuker, Dakar, Sénégal. **Teacher of the following courses:** Chemical reaction engineering (homogeneous reactors), non-ideal reactor systems (residence time distributions, flow patterns), Industrial reactors (mainly heterogeneous reactors), Computer-aided chemical reaction engineering (CACRE, postgraduate course), chemical kinetics (mainly postgraduate course). Author of about 10 pedagogic texts. Lecturer of the course 'Towards new catalysts and reactors' (at Università di Padova and annually at Universidad de Valladolid), Lecturer and one of the main organizer of the intensive course 'International School of Kinetics and Reactor Architecture (ISKRA2023) (Erasmus Mundus course organized in Napoli as a collaborative effort of Università di Napoli 'Federico II' (UniNa), Technische Universität Dresden (TUD) and Åbo Akademi (AAU) , Lecturer and main organizer of Catalysis, Kinetics and Reactors course for undergraduates at Universidad de Federico Santa Maria, Valparaiso, Chile 2023. **Main author of the textbooks:** Salmi, T., Wärnå, J., Mikkola, J-P., *Chemical Reaction Engineering and Reactor Technology*, 2010, 627 p., CRC Press, Boca Raton Florida, 2nd Edition in June 2019); Salmi, T., Wärnå, J., Hernández Carucci, J.R., de Araujo Filho, C.A., *Chemical Reaction Engineering – A Computer-Aided Approach*, 235 p., De Gruyter, Berlin 2020, 2nd Edition June 2023

10 SCIENTIFIC ACKNOWLEDGES AND AWARDS, MEMBERSHIPS IN SCIENCE ACADEMIES

Magnus Ehrnrooth Prize for research in chemistry, 2011 (*Societas Scientiarum Fennica – Finnish Society of Science and Letters*). This national prize is given every third year for excellent research in chemistry (17000 euro), **Nobel Prize Winner A.I.Virtanen Prize, 2019** (granted by *Suomalaisten Kemistien Seura – Society of Finnish Chemists*). This national prize is given every sixth year to a representative of chemical sciences (10000 euro), Congress Prize of the City Turku/Åbo, 2007 (for the EuropacatVIII conference, 1500 participants), **Chancellor's Prize** of Åbo Akademi University for best research leader 2013 and 2019, Best doctoral thesis supervisor's Award, Åbo Akademi University 2024, **White rose knighthood**, 1st class, granted by President of the Republic of Finland, 2009, Yellow Rose by Åbo Akademi University Student Union, 2013, The **PSE Model-Based Innovation Prize (United Kingdom)**, 2015, **Honorary member** of Czech Society of Chemical Engineering 2014-, Finlandssvenska Folktingets Medalj 2018, Honorary member of Finnish Catalysis Society 2018-, Honorary member of Chemical Society of Turku/Åbo 2019-, Honorary member of Finnish Chemical Society 2020-, Honorary member of Finnish Chemical Society 2019 **Member of Societas Scientiarum Fennica** (Finnish Society of Sciences and Letters, the oldest and most prestigious science academy of Finland) 2006-, **Member of Finnish Academy of Sciences and Letters**, 2012-

11 OTHER SCIENTIFIC POSITIONS AND SCIENTIFIC ACHIEVEMENTS

Referee (approx. 400 times) for various international journals in chemical engineering and catalysis (e.g. Chem. Engng Sci, Chem Engng Journal, Ind. Eng. Chem. Res., J. Catal., Catal. Today, Chem. Engng Proc., Green Chemistry), **Evaluator of research projects and programmes** in Germany, Switzerland, Portugal, Netherlands and Czech Republic, **Evaluator of docentships and professorships** in Finland and Sweden), Jury member in the evaluation of the habilitation of Dr Carine Julcour-Lebique (Toulouse) and Dr Sébastien Leveneur (Rouen), Scientific committee member, CHISA2008, ECCE2010, CAMURE&ISMR 2011, CHISA 2012, CHISA 2014, ISCRE2012, ISCRE2014, CAMURE&ISMR 2014, ESCRE2015, ECCE10-2015, CHISA2016, CAMURE&ISMR 2017-2024, ISCRE2018, CAMURE&ISMR 2020, ISCRE2020, ISCRE2024, UCRA4-2026 **Organizer of the largest event in**

catalysis in Europe, EUROPACATVIII (2007), more than 1500 participants, main organizer of 18th International Symposium on Chemical Reaction Engineering (ISCRE28, 2024), around 450 participants Board member of Tekniska Föreningen i Finland 2006-2008, Board member of Raisio Research Foundation, 2005-, Member of advisory and scientific boards of numerous conferences (e.g. Nordic Symposium on Catalysis, International Congress on Catalysis, Dynamics in catalytic systems (CHISA 2012-2018), World congress in chemical engineering 2005, Catalysis and multiphase reactors (2011, 2017, 2020, 2024), International Symposium on Chemical Reaction Engineering (ISCRE) 2012, 2014, 2018, 2020, 2024), Finnish Catalysis Society, Board member 1991-95, 1999-2002, 2013-2016 (chairman 93-95, 99-02), Member of Nordic Board of Catalysis 1992-02, Chairman 96-98, Member in the Working Party of European Federation of Chemical Engineering, 'Chemical Reaction Engineering', 1996-, and 'High Pressure Applications' 2015-, Member in the working party of European Federation of Chemical Engineering, 'Chemical Engineering in the Applications of Catalysis', 1991-95, Member of Scientific Board of the Institute of Chemical Process Fundamentals, Czech Academy of Sciences, 2004-, Steering group member of Helmholtz-Allianz for Energy-efficient three-phase reactor systems 2012-2015, TU Delft Process Technology Institute (DPTI) – Member of International Programme Committee 2012-2019, Baltic University Programme network (BUP), Board member 2015-, Turku Future Technology (TFT), Chairman of steering group 2016-2019, Member of Advisory Board of Chemical Engineering Department at Universidad de Valladolid, 2007-2014 Chairman, National Committee for Selection of Students to Technical Universities and Faculties in Finland, 2000-2014, Head of Laboratory, Industrial Chemistry and Reaction Engineering, AAU, 2000-2011, Board member, Johan Gadolin Process Chemistry Centre, AAU, National Centre of Excellence (Academy of Finland), 2003-2009, Board member, University board, AAU, 2003-2005, Dean, Faculty of Chemical Engineering, AAU, 1989-2005, Faculty member, Faculty of Chemical Engineering and Faculty of Science and Engineering (FNT), AAU (1989-1990, 1992-1993, 1996-1998, 2000-2005, 2015-2018), 2015-2018 Dean, Faculty of Science and Engineering (FNT), AAU. **Invited keynote and plenary lectures:** Catalysis in Multiphase Reactors (Toulouse and Qingdao), CHISA (Prague/Praha, several times), Croatian Conference on Chemistry and Chemical Engineering (Split), Dutch Conference on Catalysis and Chemical Engineering (Nordwijkerhout), Slovak Conference on Chemical Engineering (Vysoké Tatry, 2 times), ERA-Chemistry – Chemistry under extreme conditions (Roscoff, France), Eesti Keemiapäevad (Estonian Chemistry Days, Tallinn), European Congress on Chemical Engineering (ECCE), International Symposium on Chemical Reaction Engineering (ISCRE27, Québec 2023), Europacat2025 (Trondheim), International Congress in Environmental Catalysis (Palermo 2025), Romanian congress in catalysis (Cluj-Napoca 2025)

Evaluator of docentships and professorships in Finland and Sweden (A. Vuori, T. Koiranen, M. Louhi-Kultanen, A. Laari, P. Koukkari, K. Engvall (KTH, Sweden), Toni Kinnunen, Pekka Simell, Efthymios Kantarelis, Tenure-track professor (KTH), Dr Liisa Rihko-Struckmann (honorary professor, Otto-von-Guericke-Universität Magdeburg), Dr Teuvo Maunula (University of Oulu). Reviewer and opponent more than 20 doctoral theses in Finland and abroad (e.g. Riitta Keiski, Pekka Oinas, Satu Sundqvist, Bård Lindström, Claudio Botar-Jid, Tanja Kolli, Lennart Andersson, G.K. Gandhi, Katja Lappalainen, Carla Pereira, Ilkka Malinen, Anders Theilgaard Madsen, Myankkumar Shah, Ernesto Altman, Fatimeh Ebrahimi, Stefan Haase, Ricardo Abejon Elias, Irene Huerta, Robert Langsch, Ana Obradovic, Farsad Lali, Kaisa Lamminpää, Jun Liu, Gerd Hilpmann, Bashra Darif, Anne Müller-Hanzlik, Pierre Albrand, Lu Xiaojia, Pia Müller, Elizabeth Garcia Hernandez, Jonas Granstrand, Yanhun Wang, José Delgado Liriano, M. Al-Yusufi, Sara Golbarg, Nicolaos Bijok, Juliana Cardenas Ramirez, Rosanna Paparo, Ana Jacob, Michele Scotto di Pert, Nadia Grimas); Jury member in the evaluation of the habilitation/promotion of Dr Carine Julcour-Lebique (ENSIACET Toulouse), Dr Sébastien Leveneur (INSA-Rouen), Dr Efthymios Kantarelis (Kungliga Tekniska Högskolan KTH Stockholm)

12 SCIENTIFIC AND SOCIETAL IMPACT OF OWN RESEARCH

Scientific articles. No. of publications: more than 700 journal articles (peer review), **h-index: 76** (July 2026), **Books:** Author of four textbooks and several book chapters, **Conference abstracts:** Around 700 conference abstracts. **Patents and inventions:** Co-inventor of six patents, **Popular articles and books:** Tens of popular articles in Swedish and Finnish about science, science policy, science history and societal issues; Co-author of **essay collections** 'On the other hand' and 'Really' (in Finnish). Active **blog writer** (AAU Researcher's blog) (more than 100 blogs written 2005-2021), several public **Studia Generalia lectures** on modern chemical engineering, utilization of biomass, history of chemistry and technology. Participation with lecturing on science organization and science politics in Ukrainian RESCUU project since the Russian military aggression and genocide against Ukrainian nation started in February 2022.