

Prof Ilpo Vattulainen

ERC Advanced Grant Recipient (2012-2017)

Dept of Physics, Tampere Univ of Tech, Finland

Member of Centre of Excellence in Biomembrane Research (Acad Finland) (2014-2019)

Member of Biomembrane Physics (Univ of Southern Denmark, Odense)

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BASIC FACTS

- **Name:** Ilpo Tapio Vattulainen
- **Birth:** 1968 (age 46)
- **Most recent degree:** Dr Tech. Helsinki Univ of Tech (HUT) (more recently known as Aalto Univ School of Science), Finland (1998)

RESEARCH INTERESTS

- **Biology.** Computational and theoretical biological physics related to complex biomolecular systems comprised of lipids, proteins, and carbohydrates, and coupling of this work to experiments in the fields of cell biology, pharmacology, biochemistry, structural biology, and related fields. Particular research topics including, among others, membrane biophysics & lipid-protein Interactions, signaling and protein dynamics, lipoproteins as well as transfer proteins & trafficking, and drug-membrane & drug-receptor interactions
- **Scientific Computing & Computational Sciences.** Method development; multiscale simulations; force field development especially for carbohydrates
- **Nanosciences.** Added value arising from our biological research applied to nanotechnological settings

CURRENT POSITION

- **Professor** of Physics (Biophysics, Tenure) at the Dept of Physics at Tampere Univ of Tech, Finland
- **Vice-Chair** of the Center of Excellence in Biomembrane Research (Academy of Finland)
- **Director** of Tampere Centre for Scientific Computing. See: www.tut.fi/tcsc/
- **Director** of the Biological Physics (BIO) group (about 45 scientists & students) at the Dept of Physics (Tampere Univ of Tech)
- **Associate Member** of Memphys – Center for Biomembrane Physics – headed by Prof. Ole G. Mouritsen (Univ Southern Denmark) – *Center of Excellence* 2002-2012 (Danish National Research Foundation)
- **Director** of the Division of Computational Physics, Department of Physics, TUT (2011–)

MOST IMPORTANT SCIENTIFIC ACKNOWLEDGMENTS AND AWARDS

- **Center of Excellence.** Together with Academyprof. Elina Ikonen and Prof. Pekka Lappalainen (Univ Helsinki), the Academy of Finland granted us the Center of Excellence in Biomembrane Research for 2014-2019
- **Award by the Magnus Ehrnrooth Foundation 2013** – the Award in Physics
- **Scientific evaluation. ERC Advanced Grant (2012-2017)** – European Research Council
- **Award by the Alfred Kordelin Foundation 2007.** The Incentive Award 2007
- **Academy of Finland Incentive Award 2005**
- **Center of Excellence.** Together with other theory/modeling groups at the Laboratory of Physics (HUT), we were chosen as a *Center of Excellence by the Academy of Finland* for 2006– 2011

RECENT RESEARCH FUNDING (EXAMPLES)

- **Academy of Finland – Centre of Excellence**, see above (2014-2019)
- **European Research Council – ERC Advanced Grant (2012-2017)**
- **Academy of Finland.** Finland Distinguished Professor project for Prof. Pavel Jungwirth (Charles Univ, Prague) to join our group at TUT
- **Academy of Finland.** Project funding for programmable materials (2012-2015)
- **Sigrid Juselius Foundation** (biomedicine). Project funding to deal with lipid-protein interactions (2012-2015)
- **Academy of Finland.** Project funding to bridge molecular simulations with computational systems biology

(2012-2016)

- **Academy of Finland.** Project funding to explore lipoproteins (2011-2015)
- **Academy of Finland.** Research infrastructure funding for scientific computing (2011-2012)
- **Academy of Finland.** Finland Distinguished Professor project for Prof. Ralf Metzler (Tech Univ Munich) to join our group at Tampere Univ Tech (2010-2015)
- **Tekes/SHOK** program funds (Metsäklusteri) (2008-2010)
- Altogether ~10 million EUR in 2006-2014 (I started at my present host organization (TUT) in 2006)

RESEARCH LEADERSHIP AND SUPERVISED DOCTORAL DISSERTATIONS

- **Leadership.** After arriving back to Finland after my post-doc, I started from scratch and founded the Biological Physics group, increasing its size from 0 to 15 people. Helsinki Univ of Tech (2001 – 2005)
- **Leadership.** After moving to Tampere Univ of Tech to start my professorship, I again started from scratch. In a few years I founded and established a new group now having ~45 people (~15 post-doctoral scientists, ~15 PhD students, and ~15 MSc students) (2006 – 2014)
- **Leadership.** After I started as the Director of Tampere Center for Scientific Computing, its computing infrastructure has been increased by a factor of 40 and it's personnel has been doubled (2009-)
- **Supervised Doctoral Dissertations.** 15 PhD theses supervised until now. Currently ~12 PhD students under supervision

OTHER SCIENTIFIC EXPERT POSITIONS AND SCIENTIFIC ACHIEVEMENTS

- **Board Member.** Many interesting duties that I enjoy very much. Examples: Customer Panel of CSC (www.csc.fi, 2013-) (chair); BioBio Society – *Societas biochemica, biophysica et microbiologica Fenniae* (2012-); Executive Committee of the European Biophysical Societies Association (EBSA) (2011-); etc.
- **Evaluator:** One of my lovely (though time-consuming) hobbies to contribute for the scientific society. Recent examples: Member of ERC Starting Grant Evaluation Panel PE3 – Condensed Matter Physics (2014-2015); Czech Natl Res Academy (2014); Qatar Natl Research Fund (3 evaluations); US-Israel Binational Science Foundation (2013); The Wellcome Trust (2013); Research Council of Lithuania (2013; 2012 twice); ERC proposals (2012, 2011); EU FP7 (12 evaluations in 2006-2013); Member of the scientific evaluation panel in PRACE (2010-); Member of the scientific evaluation panel in HPC-EUROPA2; FNRS, Belgium (2014, 2013, 2012, 2011); and many others
- **Evaluator:** Acted as a (regular) referee for ~62 different scientific journals; typically ~30-40 manuscripts/year
- **Editorial Board Member.** Review Editor, *Frontiers in Mathematics of Biomolecules* (2014-); *PeerJ* journal (2012-), etc.
- **Opponent:** PhD defences (2); **Pre-examinations,** PhD theses (11); **Evaluator,** Docentships (4); **Appointments** (Prof positions etc.), many
- **Conference, Workshop, and Summer School Co-Organizations.** Many
- **Member, Program committees.** Many
- **Invited talks in major international conferences.** Examples of ~70 invited talks include: *EMBO Conference 2013*, Amsterdam; *Intl Congress of the Spanish Biophysical Society*, Barcelona, Jul 2012; *The 495. Wilhelm und Else Heraeus-Seminar Frontiers in Biomolecular Simulation*, Bad Honnef, Jan 2012; *International ERATO Symposium on Lipid Structures in and around Proteins*, Osaka, *Biophysical Society Meeting*, Long Beach, USA, Feb 3, 2008

SCIENTIFIC AND SOCIETAL IMPACT OF THE APPLICANT'S OWN RESEARCH

- **Publications.** About 200 peer-reviewed articles, H-index 44, with ~6000 citations. Articles published, e.g., in *Chem Rev*, *Nature Chem Biol*, *PLoS Biol*, *PNAS*, *JACS*, *PRL*, *PLoS Comput Biol*, etc.
- **Partner and Scientific Advisor.** Materials development company
- **Training of experts for the society.** PhD students and postdocs I have trained are employed in great positions, such as Emma Falck (Director of Strategy, KONE), Emma Terämä (Senior Researcher, Univ College London and Finnish Environment Institute), Olli Punkkinen (Risk Analyst, Eläke-Fennia), Perttu Niemelä (Research Scientist, Varian Medical Systems), etc.