

Åbo Akademi University

Turku/Åbo – the oldest city of Finland

Research, innovation and student mobility: the Scandinavian approach

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Academy of Finland & Åbo Akademi University



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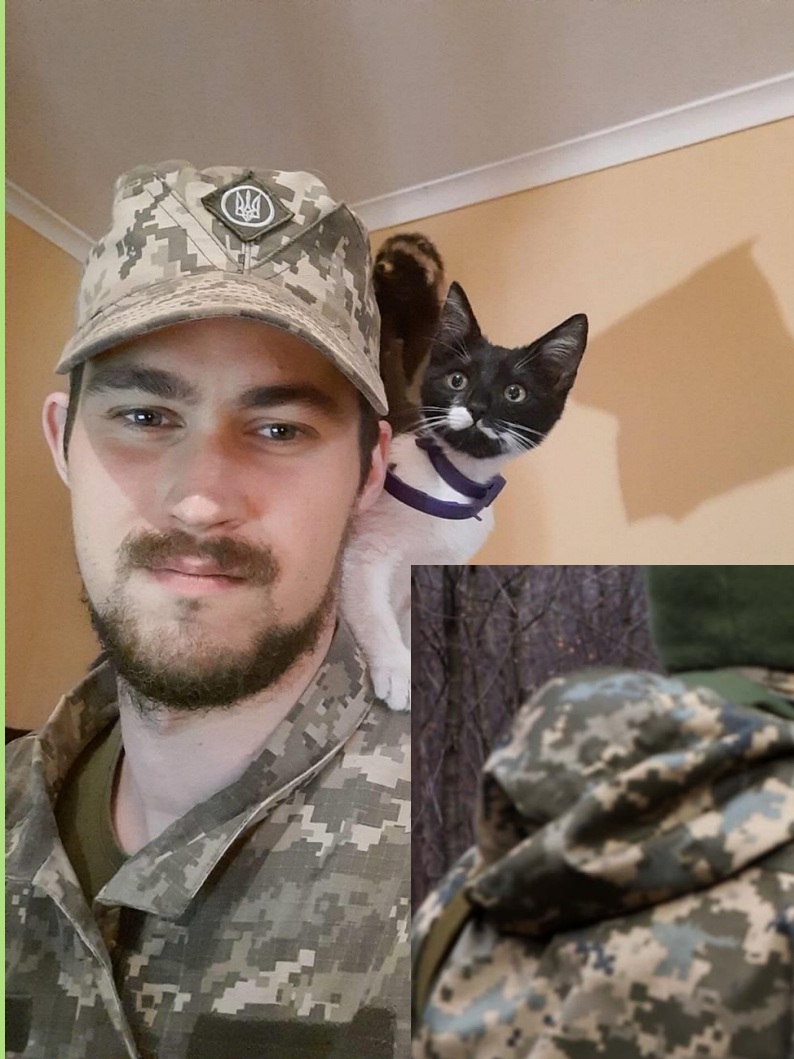
Turku/Åbo Finland

Royal Academy was established 1640 in Turku/Åbo by Queen Kristina during the good old Swedish time in Finland

It was closed by the Russian emperor Nikolaj I after the Turku fire 1827

The resurrection of academic education in Turku/Åbo took place after Finnish independence (1917): 1918 Åbo Akademi University, 1920 University of Turku - both were private universities

Alumn DI Ralf Siren – M.Sc. in chemical engineering from Åbo Akademi – top student and voluntary soldier in Ukraine



Chemical engineering education started at
Åbo Akademi 1.7.1920 – a revolutionary step!



Chair in general chemical technology

One of the pioneers in chemical technology in Finland

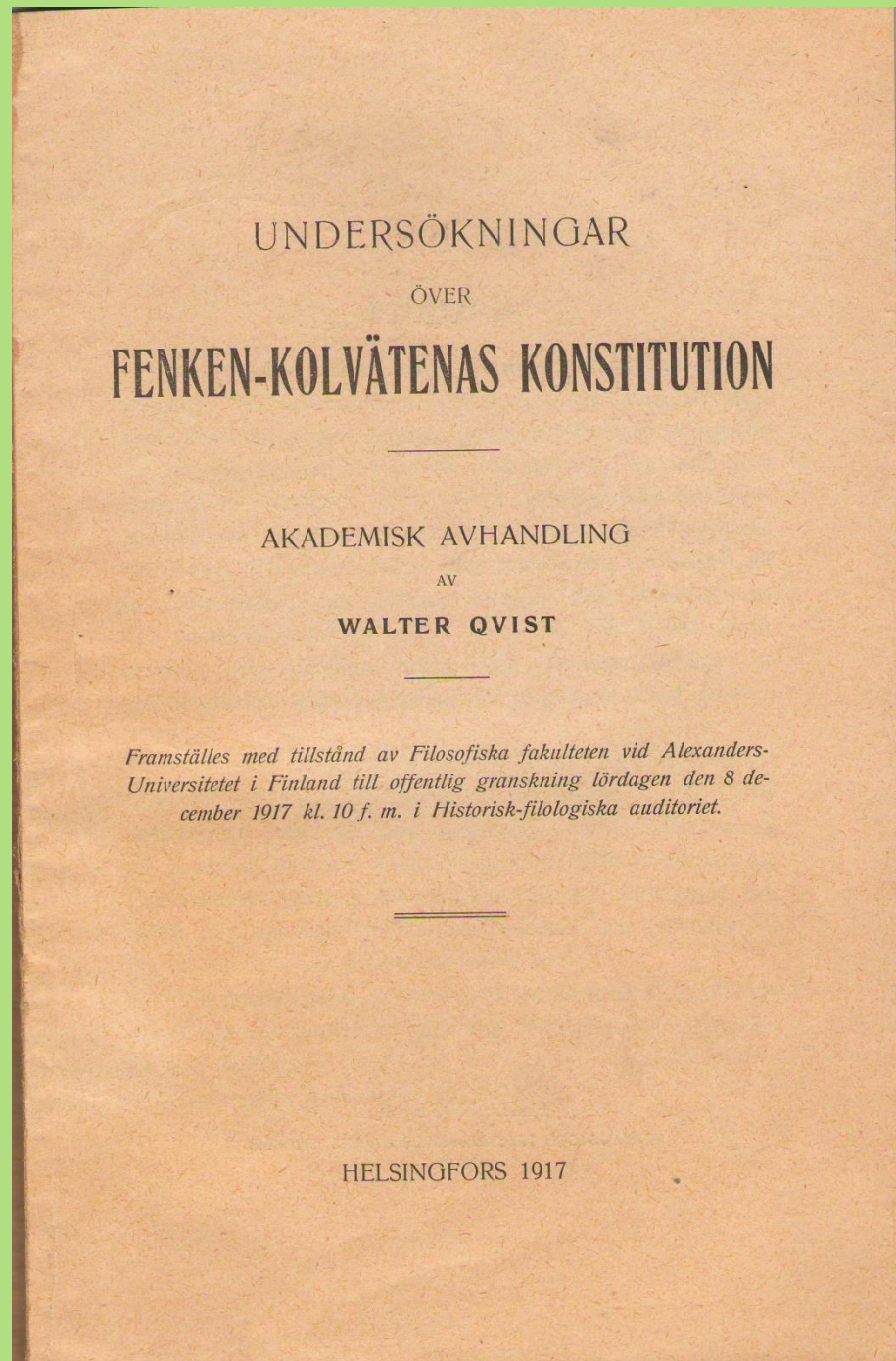
Walter Qvist ordinarius in *allmän kemisk teknologi*) vid ÅA (1920-1961) – Borgström professorship

Walter Qvist' dissertation

8.12.1917 -

Finland had become

independent 6.12.1917



Chair in forest products' chemistry and chemical technology since 1920



Professor **Erik Hägglund** (1921-1930) in his private laboratory

Main players in research and innovation in Scandinavian countries

**Finland (FI), Denmark (DK), Iceland (IS),
Norway (NO) and Sweden (SE)**

- **Universities:** a dense network of universities serving not only the global science but the different parts of the **country** (Finland: Åbo Akademi University, University of Turku, University of Helsinki, University of Tampere, University of Jyväskylä, University of Eastern Finland, University of Oulu, University of Lapland,...; Denmark: University of Copenhagen, Technical University of Denmark, University of Århus, University of Ålborg, University of Southern Denmark)
- **Research institutes** (VTT (FI), LUKE (FI), YKI (SE), SINTEF (NO)...))
- **Enterprises** (industrial research activities are large – exportation is a necessity for us – high tech!)

Research financing...

Human resources and infrastructure



Financing of the research and innovation (1)

Principle of pluralism is characteristic for Scandinavian countries - different kinds of financial sources - diversity

- Direct state financing to universities, from the annual budget of the country (e.g. Åbo Akademi University about 60% of the university's annual budget)
- Financing from Academy of Finland (FI, annually 500 megaeuro), Vetenskapsrådet (SE, annually 800 megaeuro)
- Financing from technology organizations, e.g. Business Finland (FI), Vinnova (SE) – collaboration between universities, research centra and industry

Financing of the research and innovation (2)

Principle of pluralism is characteristic for Scandinavian countries - different kinds of financial sources - diversity

- Financing from European Union (EU): EU projects, ERC grants, Erasmus (student mobility)
- Direct financing from enterprises – often limited to really big players (Statoil (NO), Neste (FI), Wartsila (FI), Haldor Topsoe (DK), UPM (FI), Stora-Enso (SE-FI), Novo (DK), Volvo (SE)...)
- Financing from very large private foundations – Scandinavia is the region of great donators (Wallenberg Foundation (SE), Kempe Foundation (SE), Carlsberg Foundation (DK), Neste-Forum Foundation (FI), J & A. Erkko Foundation (FI), Finnish Cultural Foundation (FI, >40 megaeuro/year), Svenska kulturfonden (FI, 40 megaeuro/year)...

Example of research financing to Åbo Akademi University

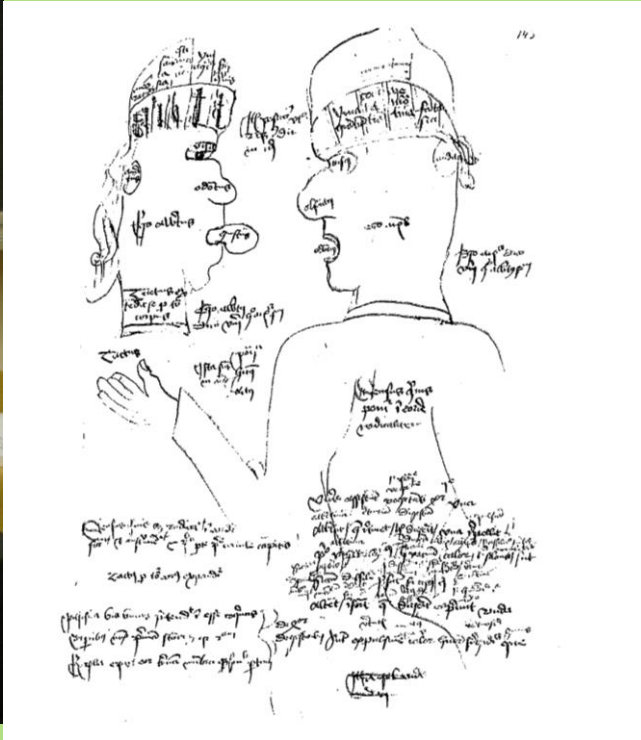
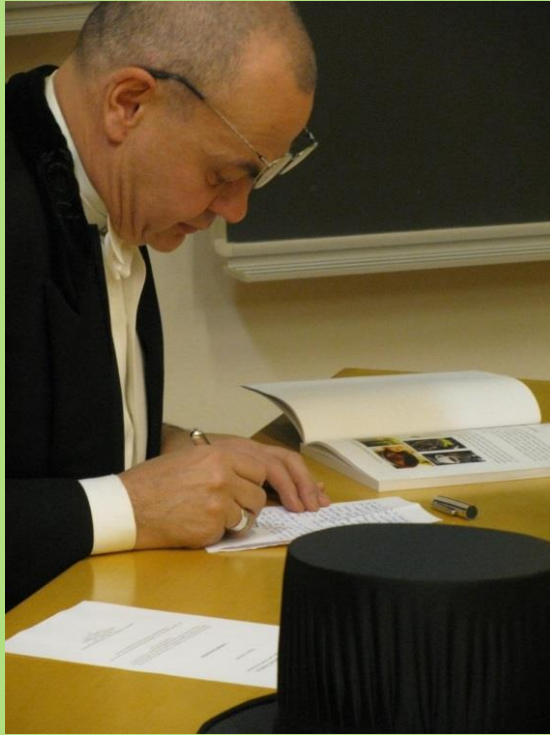
- Åbo Akademi University (via state)
- Stiftelsen för Åbo Akademi (our private university foundation)
- Finlands Akademi
- TEKES & Business Finland
- Suomen kulttuurirahasto
- Svenska kulturfonden
- Svenska Litteratursällskapet i Finland
- Graduate School in Chemical Engineering
- Magnus Ehrnrooths stiftelse
- Neste-Fortum-stiftelsen
- W. Ahlströms stiftelse
- Raisio forskningsstiftelse
- SmartBio
- Europeiska unionen (EU)
- Industrial enterprises



Criteria for state financing of Finnish universities

1. Number of Bachelor, Master's and Doctoral degrees – three-years moving average is used
2. Publication activities (articles in international journals, a national ranking system of international journals is in use; a similar ranking system is applied in Denmark and Norway)
3. Strategic visions, profiling areas of the university (e.g. Åbo Akademi University has the profiling areas: Minority research, The Sea, Technologies for a sustainable future, Solutions for health)

Research is A & O at Scandinavian universities

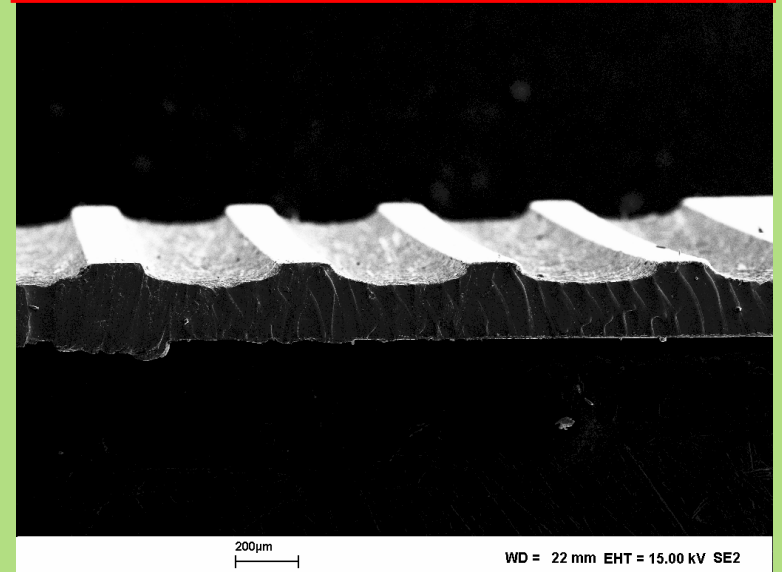
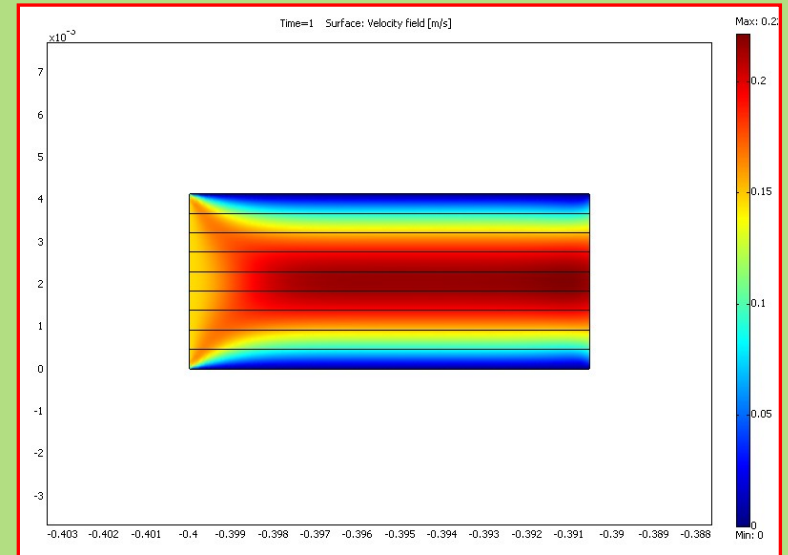
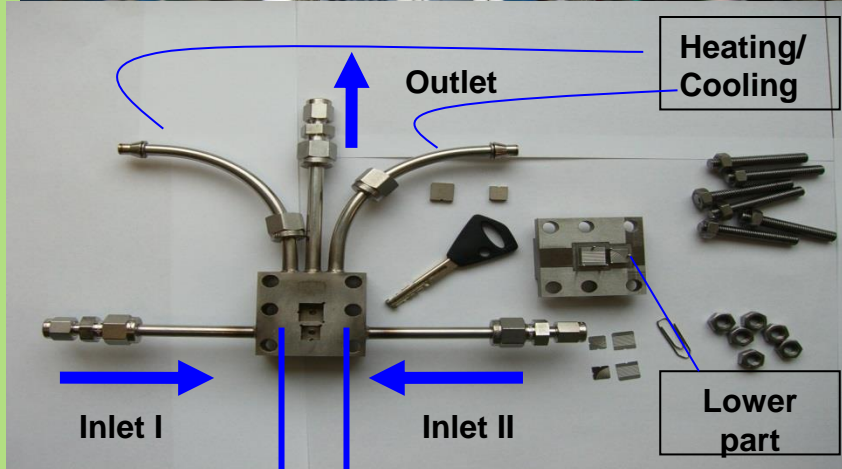


Doctoral dissertation today and at the Catholic university of Uppsala, Sweden in the 15th century

Sabrina Schmidt (originally from Aachen, Germany):
Alfthan prize for the best doctoral thesis
in chemical sciences in Finland –
Faculty opponent prof Jaap Schouten from TU Eindhoven

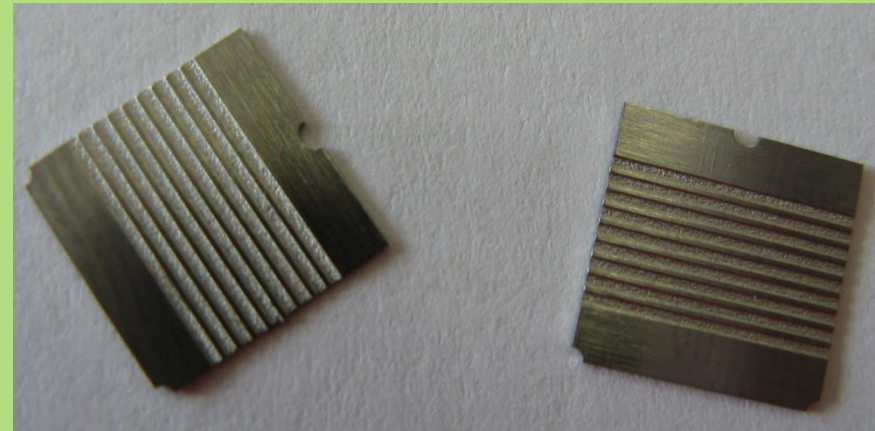
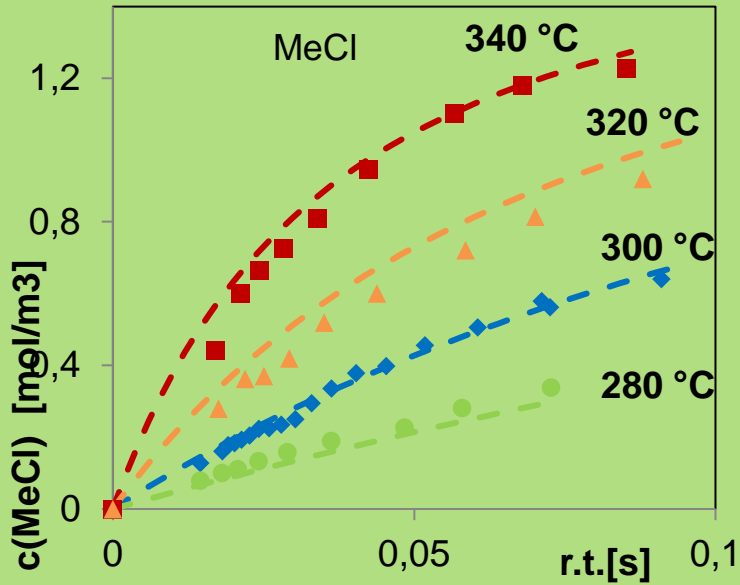


Microreactor system



J. Hernández, S. Schmidt et al.

Synthesis of methyl chloride in a microreactor– Sabrina Schmidt



- Sabrina Schmidt & Arne Reinsdorf et al. Chemical Engineering Science

Young scientists are our future!

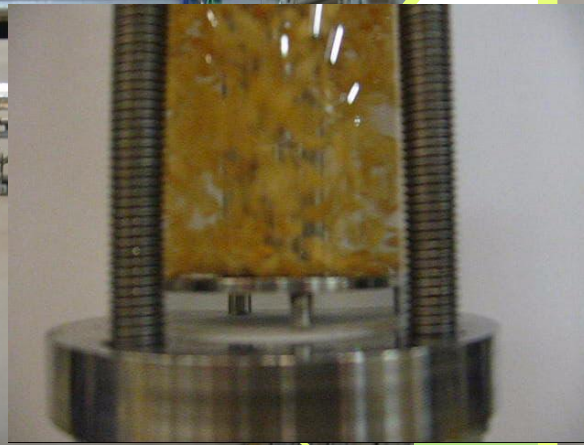
Docent Dr Adriana Freites Aguilera – *Elfvings Legat* for best doctoral thesis at Åbo Akademi University - Refining of tall oil to valuable epoxide components 2021

TkK Wilhelm Wikström – National award for B.Sc. Thesis – New kinetic measurement concept 2021

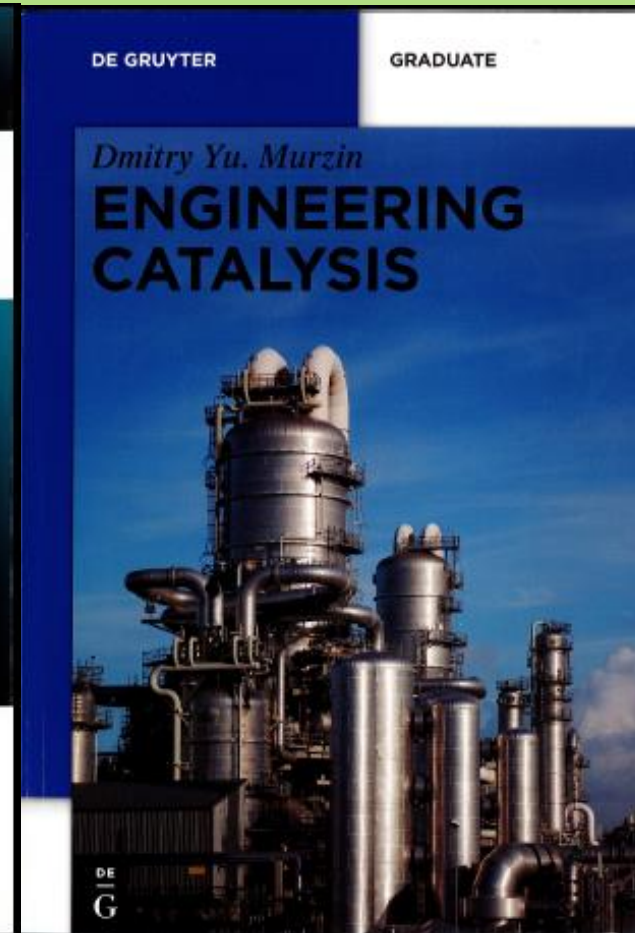
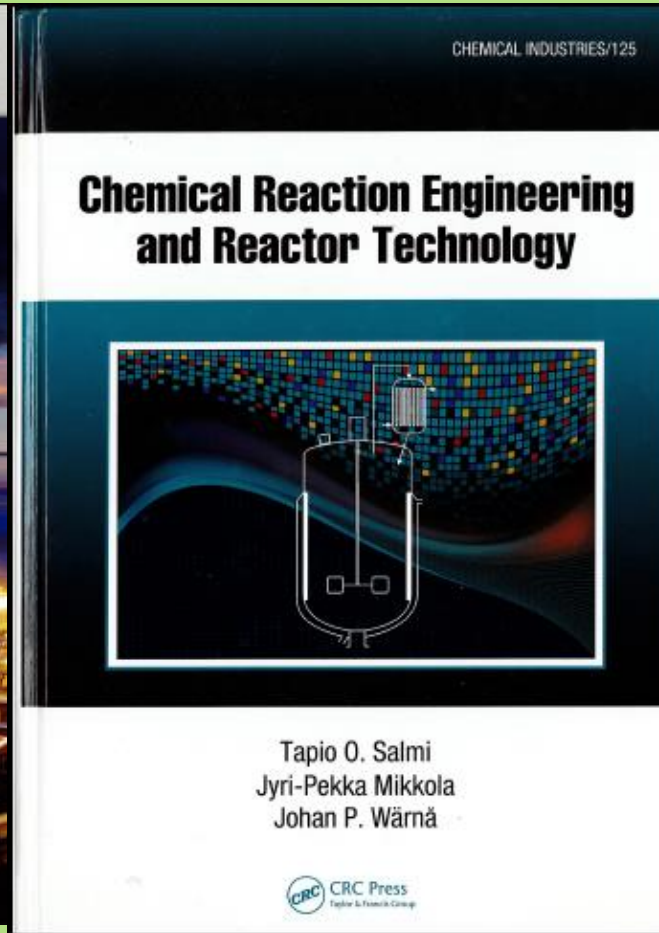
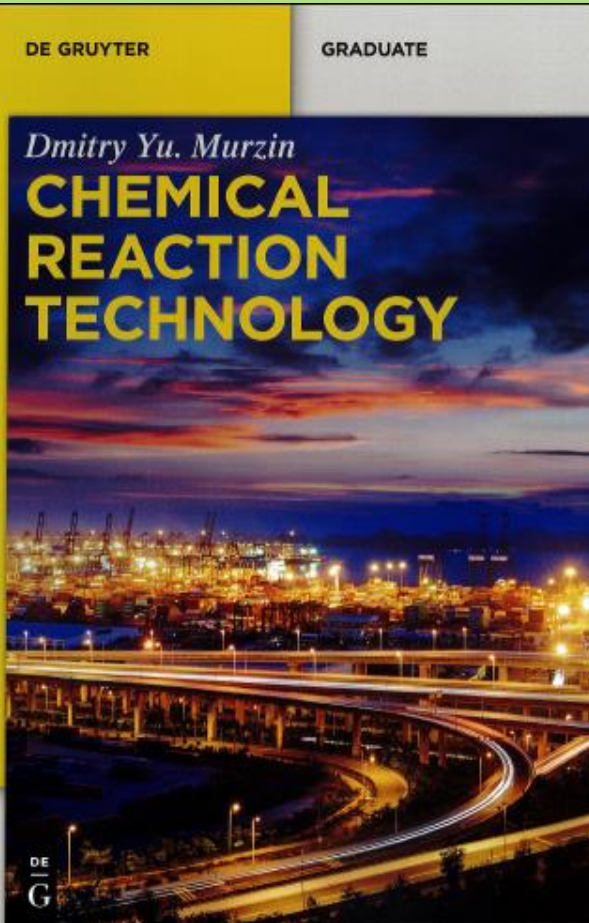
Dr Soudabeh Saied – Best doctoral thesis in catalysis in Finland (given every 3rd year) - Destruction of pharmaceuticals in wastewaters 2022

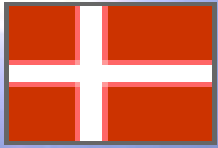


Cascade reaction-extraction equipment



Textbooks should be written – for students





Denmark



Finland



Norway



Sweden

Europacat VIII 2007

26-31th of August 2007

Turku/Åbo

Finland





Nobel laureate R. Grubbs with D. Murzin

Europacat VIII Åbo

Akademic traditions in our city Turku/Åbo since 1640

