Curriculum vitae with track record (for researchers)

Role in the project Project manager ☐ Project partner ☒

Personal information

First name, Surname:	Magne Hillestad		
Date of birth:	1956.12.08	Sex:	Male
Nationality:	Norway		
Researcher unique identifier(s) (ORCID, ResearcherID, etc.):	https://orcid.org/**0000-0001-5658-8120**		
URL for personal website:	https://innsida.ntnu.no/user/magnehi/ansatt/min-profil		

Education

Year	Faculty/department - University/institution - Country
1986	Ph.D.: Department of Chemical Engineering, NTH, Norway
1980	Master: Department of Physical Chemistry, NTH, Norway

Positions - current and previous
(*Academic sector/research institutes/industrial sector/public sector/other)*

Year	Job title – Employer - Country
2007-now	Professor, Department of Chemical Engineering, NTNU, Norway
2001-2007	Senior specialist engineer, Cybernetica AS, Norway
2000-2001	Independent Consultant for Borealis, implementing MPC applications on polyolefin plants
1988-2000	Lead engineer, Statoil Research Centre, Norway

Career breaks

Year	Reason
yyyy-yyyy	

Project management experience
(*Academic sector/research institutes/industrial sector/public sector/other. Please list the most relevant.)*

Year	Project owner - Project - Role - Funder

1988-1994	Statoil: Gas-to-middle-distillate (GMD) project. Participating in development of conceptual design of a gas-to-liquid process. Modeling of slurry bubble column reactor, technology evaluation of synthesis gas production.
1989-1998	Statoil: Project manager PROSOP-process optimization: This was a large project containing many sub-projects. The main objective was to improve design, operational procedures, and control of existing process plants within Statoil and Borealis. The project resulted in many operational and design improvements of polymer production plants. The model predictive control system, OnSpot / BorAPC, together with dynamic models of polymer reactors were developed and implemented on many plants during the project period. Polymer grade transitions were improved resulting in increased production and substantially improving the product consistency.
1996-2000	Statoil, the methanol project: Operational improvement of the steam methane reformer with emphasis on energy consumption; modelling of the methanol synthesis reactor and methanol loop for performance evaluation; experimental design and nonlinear model regression of methanol kinetics.
2001-2007	Cybernetica AS, the Hydro Aluminium project: Modelling of alumina reduction cell for online state estimation. Based on the few available online measurements, like the electric resistance, feed rate of alumina and fluoride in addition to the anode position, the model is applied for estimation of temperature, alumina, and fluoride concentrations in the bath in addition to the slag thickness.
2007-current	NTNU: Responsible for teaching of subjects in chemical process design, mathematical modeling ad model fitting. Process design and optimization of post combustion CO_2 capture plants. Development of membrane processes for hydrogen/CO_2 separation. GassMax project: Development of gas-to-liquid processes both for onshore and offshore. Hydrogen production from natural gas with CO_2 capture. RENBTL project: Lignocellulosic biomass conversion to syngas and further to Fischer-Tropsch fuels integrated with renewable power. Development of a flexible process for direct hydrogenation of CO2 to methanol with intermittent renewable power.

Supervision of students

(Total number of students)

Master's students	Ph.D. students	University/institution - Country
60	14	NTNU, Department of Chemical Engineering, Norway

Other relevant professional experiences

(E.g. institutional responsibilities, organisation of scientific meetings, membership in academic societies, review boards, advisory boards, committees, major research or innovation collaborations, other commissions of trust in public or private sector)

Year	Description - Role
yyyy	

Track record

Published: ca 120 articles and conference papers.

Relevant articles during the last years:

Hillestad, Magne (2023),
Direct hydrogenation of carbon dioxide to methanol: Systematic generation of multistage designs, *submitted to Journal of CO2 Utilization*.

Hillestad, Magne (2022).
Systematic generation of a once-through staged reactor design for direct methanation of biogas. *Chemical Engineering and Processing*. volum 181.

Nielsen, Anders; Ostadi, Mohammad; Austbø, Bjørn; Hillestad, Magne; del Alamo Serrano, Gonzalo; Burheim, Odne Stokke (2022
Enhancing the efficiency of power- and biomass-to-liquid fuel processes using fuel-assisted solid oxide electrolysis cells. *Fuel.* volum 321.

Ostadi, Mohammad; Hillestad, Magne (2022).
Renewable-power-assisted production of hydrogen and liquid hydrocarbons from natural gas: techno-economic analysis. *Sustainable Energy & Fuel*s. volum 6 (14).

Lei, Linfeng; Pan, Fengjiao; Lindbråthen, Arne; Zhang, Xiangping; Hillestad, Magne; Nie, Yi; Bai, Lu; He, Xuezhong; Guiver, Michael D..
Carbon hollow fiber membranes for a molecular sieve with precise-cutoff ultramicropores for superior hydrogen separation. *Nature Communications* 2021; Volume 12.

He, Xuezhong; Kumakiri, Izumi; Hillestad, Magne.
Conceptual Process Design and Simulation of Membrane Systems for Integrated Natural Gas Dehydration and Sweetening. *Separation and Purification Technology* 2020; Volume 247.

Dalane, Kristin; Svendsen, Hallvard Fjøsne; Hillestad, Magne; Deng, Liyuan. Membrane contactor for subsea natural gas dehydration: Model development and sensitivity study. *Journal of Membrane Science* 2018; Volume 556. s. 263-276

Patterson, B.D., Mo, F., Borgschulte, A., Hillestad, M., Joos, F., Kristiansen, T., Sunde, S., van Bokhoven, J.A, Renewable CO2 recycling and synthetic fuel production in a marine environment, (2019), *Proceedings of the National Academy of Sciences of the United States of America*, **116** (25), pp. 12212-12219.

Hillestad, Magne; Ostadi, Mohammad; del Alamo Serrano, Gonzalo; Rytter, Erling; Austbø, Bjørn; Pharoah, Jon; Burheim, Odne Stokke. Improving carbon efficiency and profitability of the biomass to liquid process with hydrogen from renewable power. *Fuel* 2018 ; Volume 234. s. 1431-1451.

Flø, Nina Enaasen; Kvamsdal, Hanne Marie; Hillestad, Magne. Dynamic simulation of post-combustion CO2 capture for flexible operation of the Brindisi pilot plant. *International Journal of Greenhouse Gas Control* 2016; Volume 48. s. 204-215.

Hillestad, Magne. Modeling the Fischer-Tropsch Product Distribution and Model Implementation. *Chemical product and process modeling* 2015 ;Volume 10.(3) s. 147-159.

Ostadi, Mohammad; Dalane, Kristin; Rytter, Erling; Hillestad, Magne. Conceptual design of an autonomous once-through gas-to-liquid process — Comparison between fixed bed and microchannel reactors. *Fuel processing technology* 2015 ; Volume 139. s. 186-195.

Karimi, Mehdi; Hillestad, Magne; Svendsen, Hallvard Fjøsne. Capital costs and energy considerations of different alternative stripper configurations for post combustion CO2 capture. *Chemical engineering research & design* 2011 ; Volume 89.(8A) s. 1229-1236.

Hillestad, Magne. Systematic staging in chemical reactor design. *Chemical Engineering Science* 2010 ; Volume 65.(10) s. 3301-3312.

Monograph: M. Hillestad, "A Sequential Modular Approach to Dynamic Simulation of Chemical Engineering Systems", PhD Thesis, Department of Chemical Engineering, NTH, August 1986.

Patent: Process Control System, US2003/0120361 A1

European Patent Application No. 21713604.3 NORDIC ELECTROFUEL AS

Award: Borealis R&D Award, the Borealis special Award for developing and implementation of BorAPC in both high- and low-pressure plants. Year 2000