

2019-11-03

Name: Nordell, Bo Anders, Prof. Emeritus

Born: 23 June 1947

Citizen: Swedish

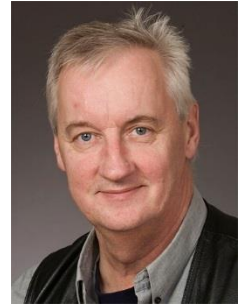
PhD (1994): Borehole Heat Store Design Optimization, LTU;

Docent (1997): Research Field: Water Resources Engineering;

Supervisor: Prof Anders Sellgren, LTU

Web: <http://www.ltu.se/staff/b/bon>

Current Address: Div. Architecture and Water, LTU, SE-97187 Luleå, Sweden



Bo Nordell has since 1979 mainly been working in the fields of renewable energy, thermal energy storage and snow/ice related problems. He is the author of more than 50 scientific articles in international journals and 100 papers at international conferences. He has supervised and examined 12 PhD, 9 Lic., and 50 MSc. Nordell was awarded (Swedish) "Environmentalist of the Year" in 2004. (Årets Miljöprofil)

Thermal Energy Storage: Nordell has since 1979 been working on renewable energy and in particular on (seasonal) storage of thermal energy. His thesis "Borehole Heat Store Design Optimization, 1994" summarizes experience of the world's first large-scale borehole heat store, constructed in 1982. This research started with the long-term aim to store solar heat of the summer for space heating during the winter. In more recent years seasonal storage of cold for space cooling during the summer was also included. He made an important contribution by developing Thermal Response Test (TRT) in 1996, for in-situ determination of thermal ground properties. This method is now used in more about 50 countries.

Snow and Ice Related Research: The interest for different aspects of snow and ice started in 1985 by the construction of Icy-Rider, a go-cart looking vehicle, which driving force is extracted from freezing water. The same principle of extracting pressure volume work of freezing water was used in his device for determining frost depth in the ground and measurement of the ice cover thickness on lakes and rivers. Nordell explained the origin of a rare natural phenomenon - Large rotating ice discs on rivers. He also showed that condensation of humid air could explain sudden collapse of snow covered buildings in warm clear weather. A more recent field of work is the development of the historically old technique of storing snow/ice for large-scale cold storage. Two such large plants are in operation for cooling of the Sundsvall Regional Hospital, Sweden, and Sapporo Airport in Japan.

Global warming: Nordell published a controversial explanation to global warming in 2003. He later determined the magnitude of global warming in terms of heat accumulation in air, ground and water. He has published several articles in which global warming is explained as a result of heat emissions from fossil fuel consumption and other net heat sources.

Education/Examination

Military Service, Ass. Meteorologist, Swedish Air Force, 1967-68

Computer Programming, DATASAAB, Linköping, 1968-69

Mining Engineering, LTU, 1974-79

Lic. Deg., Water Resources Eng., LTU, 1986)

PhD, Water Resources Eng., LTU, 1994

Docent, Water Resources Eng., LTU, 1997

Employments

Computer Programmer, SAMDATA AB, Stockholm, 1969-74

Welder, SAAB-SCANIA, Luleå, 1977-78

Research Engineer, Div Water Resources Eng., LTU 1979-83

Sen. Res Engineer, Water Res Eng., LTU 1983-86

Researcher, Div Water Res Eng., LTU, 1986-95

Sen. Lecturer, Div Water Res Eng., LTU, 1995-01

Prof., Div Water Res Eng., LTU, 2001-02

Prof., Div Renewable Energy, LTU, 2003-05

Prof., Div. Architecture & Water, LTU, 2005-2017

Senior Prof., Div Architecture & Water, LTU, 2005-2017

Prof. Emeritus, Div Architecture & Water, LTU, 2018 -

Assignments

- Secretary of the IEA Research Program on Thermal Energy Storage (1995-1999). This program (Energy Conservation through Energy Storage Implementing Agreement) consists of a large number of research projects (annexes) for storage of different types on energy.
- Project Manager (Operating Agent) of Annex 8 within ECES IA (since 1994). The aim of this project group of energy storage experts (from eight countries) is to speedup the development and utilization of thermal energy storage to save money, energy and environment.
- Reviewer in international scientific journals and research councils.
- Scientific Chairman of the 11th Int. Conf. on Thermal Energy Storage; Effstock'2009 - Thermal Energy Storage for Energy Efficiency and Sustainability. Stockholm, Sweden, June 14-17 2009.

Supervised Licentiate and PhD Work

- **Maria Engström (2017)** Secondary Currents in Groundwater. Doctoral Thesis in Water Resources Eng., Div of Architecture and Water, Luleå University of Technology, Sweden..
- **Bagher Yousefi (2017)** Evaluation and detection of effective factors on Condensation Irrigation and performance using Cl2D simulation model, physical modelling. Doctoral Thesis of Irrigation Drainage. Shahid Chamran University of Ahvaz, Iran (Ass. Supervisor 2013-2017)
- **Liuzzo Scorpo, Alberto (2014)**. Heating and cooling of buildings using geothermal heat pumps: characterization of the geothermal source and energy requirements"; - 2D and 3D numerical models using COMSOL Multiphysics. Doctoral thesis Trieste University, Trieste, Italy (Ass. Supervisor 2012-2013)
- **Lindblom, Jenny (2012)**. Condensation irrigation : a combined system for desalination and irrigation. Doctoral Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden..
- **Kharseh, Mohamad (2011)**. Reduction of prime energy consumption by ground source heat pumps in a warmer world. Doctoral Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Amara, Sofiane (2011)**. Novel and ancient technologies for heating and cooling buildings. Doctoral Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Gustafsson, Anna-Maria (2010)**. Thermal response tests: influence of convective flow in groundwater filled borehole heat exchanger. Doctoral Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Kharseh, Mohamad (2009)**. Reduction of prime energy consumption in the Middle East by GSHP systems. Licentiate Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Gustafsson, Anna-Maria (2006)**. Thermal response test: numerical simulations and analyses. Licentiate Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Lindblom, Jenny (2006)**. Condensation irrigation: simulations of heat and mass transfer. Licentiate Thesis. Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Engström, Maria (2005)**. Seasonal turnover in groundwater. Licentiate Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Skogsberg, Kjell (2005)**. Seasonal Snow Storage for Space and Process Cooling. Doctoral Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Tuomas, Göran (2004)**. Water powered percussive rock drilling: process analysis, modelling and numerical simulation. Doctoral Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Dikici, Derya (2004)**. Cukurova University, Adana, Turkey. (Ass Supervisor)
- **Gehlin, Signhild (2002)**. Thermal Response Test. Mehtod Development and Evaluation. Doctoral Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Tuomas, Göran (2001)**. System for water driven down-hole hammer drilling. Licentiate Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Skogsberg, Kjell (2001)**. Seasonal Snow Storage for Cooling Applications. Licentiate Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Gehlin, Signhild (1998)**. Thermal Resonse Test - In Situ Measurements of Thermal Properties in Hard Rock. Licentiate Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.
- **Söderlund, Monika (1987)**. Water Film Solar Collector. Licentiate Thesis, Div. Water Resources Eng. Luleå University of Technology, Sweden.

Opponent / Member of Evaluation Committee at PhD seminars

- Janiszewski, Mateusz (2019)** Techno-economic aspects of seasonal underground storage of solar thermal energy in hard crystalline rocks. Aalto University School of Engineering, AALTO, Finland (25 Oct 2019)
- Monzo Carcel, Patricia Maria (2018)** Modelling and monitoring thermal response of the ground in borehole fields. Dept. of Energy Technology, Royal Institute of Technology, Stockholm, Sweden (23 Feb 2018).
- Lazzarotto, Alberto (2015)**. Developments in ground heat storage modeling. Division of Building Technology, Royal Institute of Technology, Stockholm, Sweden (28 May 2015)
- Jianjong, Chen (2014)**. Investigation of Vapor Ejectors in Heat Driven Ejector Refrigeration Systems. Division of Applied Thermodynamics and Refrigeration. Dept. of Energy Technology, Royal Institute of Technology, Stockholm, Sweden (16 Dec 2014).
- Dmytro S (2014)**. Hydrogeochemical effects of hydropower regulation on river-aquifer continuum in boreal rivers. Division of Applied Geology. Luleå University of Technology. (12 Sep 2014).
- Baba, Ahmed (2014)** Energy Study and behavior damage of a black polymeric film for solar still applications. LAEPO, Tlemcen University, Tlemcen Algeria (22 Jan 2014).
- Prabakaran, J. (2013)**. Some Investigations on Vortex Tubes. Dept. of Mech. Eng., Faculty of Eng. and Techn. Annamalai University, Tamilnadu, India (June 2013)
- Acuña, José (2013)**. Distributed thermal response tests – New insights on U-pipe and Coaxial heat exchangers in groundwater-filled boreholes. KTH School of Industrial Engineering and Management, Division of Applied Thermodynamic and Refrigeration (22 Feb 2013).
- Perers, Bengt (2013)**. Scientific assessment for employment of Lecturer in Building Technology at the Mälardalen University, Sweden. (127/12)
- Ericsson, Lars O (2013)**. Scientific assessment for promotion to full professor in Engineering Geology with a focus on natural resources at Chalmers University of Technology, Sweden. (ReachMee 20120155).
- Heiko Liebel. Trondheim, Norway (2012)**. Influence of groundwater on measurements of thermal ground properties in fractured aquifers (26 April 2012) (Opponent: B Nordell).
- Kjellsson, Elisabeth (2009)**. Solar Collectors Combined with Ground-Source Heat Pumps in Dwellings – Analyses of System Performance. Div. of Buildings Physics, Lund Institute of Technology, Lund, Sweden. (2 Dec 2009).
- Grozdek, Marino (2009)**. Load Shifting and Storage of Cooling Energy through Ice Bank or Ice Slurry Systems - modelling and experimental analysis. Division of Applied Thermodynamics and Refrigeration. Dept. of Energy Technology, Royal Institute of Technology, Stockholm, Sweden (16 Oct 2009).
- Claesson, Joachim (2009)**. Promotion to Senior Lecturer (Ass. Professor) in Energy Technology at the Division of Applied Thermodynamics and Refrigeration. Dept. of Energy Technology, Royal Institute of Technology, Stockholm, Sweden (29 April 2009).
- W. Primal D. Fernando (2007)**. Experimental Investigation of Refrigerant Charge Minimisation of a Small Capacity Heat Pump. Division of Applied Thermodynamics and Refrigeration. Dept. of Energy Technology, Royal Institute of Technology, Stockholm, (19 Feb 2007).
- Kalskin Ramstad, Randi (2004)**. Ground source energy in crystalline bedrock - increased energy extraction by using hydraulic fracturing in boreholes. Faculty of Engineering Sciences, Department of Geology and Rock Engineering. Norway University of Technology, Trondheim, Norway (16 Dec 2004) (Opponent: B Nordell).
- He, Bo (2004)**. High-Capacity Cool Thermal Energy Storage for Peak Shaving. A Solution for Energy Challenges in the 21th Century 4 June 2004. Doctoral Thesis, TRITA-KET R195, Chemical Engineering and Technology, Royal Institute of Technology, Stockholm, Sweden (4 June 2004).
- Sundqvist, Bror (2004)**. Colour changes and acid formation in wood during heating. Doctoral Thesis 2004:10. Skellefteå Campus. Div Wood Material Science. Luleå University of Technology. (7 May 2004).
- Mohamed Thameur Chaibi (2003)**. Greenhouse Systems with Integrated Water Desalination for Arid Areas Based on Solar Energy. Dept of Agricultural Biosystems and Technology, Swedish University of Agricultural Sciences, Alnarp, Sweden.(9 May 2003).
- Thomas Sundqvist (2002)**. Power Generation Choice in the Presence of Environmental Externalities. Doctoral Thesis 2002:26. Dept. of Political Sciences. Luleå University of Technology. (24 Sep 2002).
- Hassan Salman (2001)**. Evaluations of a Cyclone Gasifier Design to be Used or Biomass Fuelled Gas Turbines. Doctoral Thesis 2001:39, Dept. of Mechanical Engineering, Luleå University of Technology. (19 Dec 2001).