ALEX HANSEN - CV

Researcher unique identifier: orcid.org/0000-0002-0860-3880

Date of birth: 04.12.1955

Nationality: Norwegian

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EDUCATION

1992	Habilitation à Diriger des Recherches Groupe Matière Condensée et Matériaux, Université de Rennes 1, France.
1986	PhD Department of Physics, Cornell University, USA.
1984	MSc Department of Physics, Cornell University, USA.
1981	Cand. Real. Department of Physics, University of Oslo, Norway.
1979	Cand. Mag. Department of Physics, University of Oslo, Norway.

CURRENT POSITIONS

2017-	Director, Center of Excellence Porous Media Laboratory (PoreLab), Norwegian University of Science and Technology (NTNU), and University of Oslo, Norway.
2015-	Associate member, Beijing Computational Sciences Research Center, CSRC.
1994-	Professor, Department of Physics, NTNU, Norway.

PREVIOUS POSITIONS

1991-1993	CNRS Chargé de Recherche 1ère Classe, Groupe Matière Condensée et Matériaux, Université de Rennes 1, France.
1989-1991	Postdoctoral Associate, Department of Physics, University of Oslo, Norway.
1988-1989	Postdoctoral Associate, IBM Bergen Scientific Centre, Norway.
1987-1988	Postdoctoral Associate, Department of Theoretical Physics, University of Cologne, Germany.
1896-1987	Postdoctoral Associate, Laboratoire Physique Statistique, Ecole Normale Supérieure, Paris, France.

FELLOWSHIPS AND AWARDS

2021-2023	Honorary Faculty, Indian Institute of Technology, Guwahati, India
2009	Dr. Honoris Causa, Université de Rennes 1, France.
2007	Norsk Hydro's Kristian Birkeland Prize in Physics, Norwegian Physical Society, Norway.
1991	Nansen Award for Young Scientists, Norwegian Academy of Science and Letters, Norway.
1986-1987	Joliot-Curie Fellowship, CEA-Saclay, France.
1981-1982	NATO Science Fellowship, Norway.
1981-1982	Fulbright-Hays Fellowship, USA.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

1992-1993	2 Postdocs / 3 PhD / 1 MSc Groupe Matière Condensée et Matériaux, Université de Rennes 1, France.
1994-	9 Postdocs / 25 PhD / 44 MSc Department of Physics, NTNU, Norway.

TEACHING ACTIVITIES

1994-2017	Taught 50 physics courses at undergraduate and graduate level at NTNU, Norway.

ORGANISATION OF SCIENTIFIC MEETINGS (last five years)

2022	Co-organizer for *Workshop on Non-Newtonian Flow in Porous Media*, Fortaleza, Brazil.
2020	International Advisory Board of *International Conference Computer Simulations in Physics and Beyond*, Moscow, Russia (now online).
2020	International Advisory Board, *SigmaPhi2020*, Crete, Greece, (postponed).

2019 Organization Committee, *Norwegian Chapter of Interpore Annual Workshop*, Stavanger, Norway.
2018 Organization Committee, *Norwegian Chapter of Interpore Annual Workshop*, Oslo, Norway.
2017 Organization Committee, *Norwegian Chapter of Interpore Annual Workshop*, Trondheim, Norway.
2017 Organization committee of *PoreLab Inaugural Workshop*, Oslo, Norway.
2017 International Adv. Committee, *CSP2017: Computer Simulation in Physics and Beyond*, Moscow.
2017 International Advisory Board, *XIX IUPAP Conference on Computational Physics*, Paris, France.

INSTITUTIONAL RESPONSIBILITIES (last five years or ongoing)

2022 Chair of the Research Quality Assessment Board of the Niels Bohr Institute.
2020 Selection committee for tenure track professorship in Complex Systems Modeling, Arctic University of Norway, Tromsø.
2020 Selection committee, professorship in physical chemistry, Department of Chemistry, NTNU.
2020 PhD committee, School of Minerals and Energy Resources, University of New South Wales.
2019 PhD committee, Department of Cybernetics, Tallinn University of Technology, Estonia.
2019 PhD committee, Department of Physics, NTNU.
2019-2021 Member of ERICA ITN network.
2017-2021 Chair of the Norwegian Chapter of Interpore.
2016-2020 Member of the Board of VISTA (Equinor and Norwegian Academy of Science and Letters).
2015- Member of the Board of the Norwegian Israeli Research Fund.
2013-2019 Chair, Computational Physics Group Board, European Physical Society (EPS).
2011-2017 Council Vice President of International Union of Pure and Applied Physics, IUPAP.
2011-2021 Member of Scientific Advisory Board of Laboratory of Excellence G-eau-Thermie Profonde, Université de Strasbourg.

REVIEWING ACTIVITIES (last three years or ongoing)

2022 Proposal review for ERC.
2020 Proposal review for Israeli Science Foundation.
2020 Proposal review for Swiss National Science Foundation.
2019 Proposal review for E2S-Université de Pau et Pays de l'Ardour.
2018 Proposal review for l'Agence Nationale de la Recherche, France.
2013- Field Chief Editor, Frontiers in Physics.
2010- Editorial board member, International Journal of Modern Physics C.
2006- Editorial board member, European Journal of Physics.
Ongoing Reviewing for multiple journals in different fields.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2014 Member of The International Society for Porous Media, Interpore.
2003 Elected membership in Norwegian Academy of Science and Letters.
2003 Elected membership in Royal Norwegian Society of Science and Letters.
2002 Elected membership in Norwegian Academy of Technical Sciences.
2000 Member of European Physical Society.

MAJOR COLLABORATIONS (year of first and last paper)

1986-2014 Stéphane Roux, Ecole Normale Supérieure Paris-Saclay, fracture/flow in porous media.
1986-2007 G. George Batrouni, INLN, Université de Nice, fracture/flow in porous media.
1992- Knut Jørgen Måløy, Dept. of Physics, University of Oslo, fracture/flow in porous media.
1993-2016 Jean Schmittbuhl, EOST, Université de Strasbourg, fracture/flow in porous media.
1998-2005 Kim Sneppen, Niels Bohr Institute, complex systems.
2007-2018 Purusattam Ray, Institute for Mathematical Sciences, Chennai, India, fracture.
2008- José Soares Andrade Jr. Universidade Fed. do Ceará, Brazil, fracture/flow in porous media.
2010- Laurent Talon, Laboratoire FAST, Université Paris-Saclay, flow in porous media.
2020- Itamar Procaccia, Dept. of Chemical Physics, Weizmann Institute, Israel, fracture/fatigue.
2020- Alberto Rosso, LPTMS, Université Paris-Saclay, flow in porous media (coll. starting now).

Ten years track-record

Citation Track Record

All years: Scopus H Factor: 42, 6815 citations.
All years: Google Scholar H factor 53, 10702 citations.
2017-2022: Google Scholar H factor 24, 2644 citations.

Ten Representative Publications 2013-2022

1. S. Roy, H. Pedersen, S. Sinha and A. Hansen, *The Co-Moving Velocity in Immiscible Two-Phase Flow in Porous Media*, Transp. Porous Media, **143**, 69 (2022). https://doi.org/10.1007/s11242-022-01783-7 [Journal Impact Factor (JIP): 3.610, Google Scholar: 6 citations]
2. H. Charan, A. Hansen, H. G. E. Hentschel and I. Procaccia, *Aging and Failure of a Polymer Chain under Tension*, Phys. Rev. Lett. **126**, 085501 (2021). https://doi.org/10.1103/PhysRevLett.126.085501 [JIP: 9.185, Scholar Google: 2 citations]
3. S. Roy, S. Sinha and A. Hansen, *Flow-Area Relations in Immiscible Two-Phase Flow in Porous Media*, Front. Phys. **8,** 4 (2020). https://doi.org/10.3389/fphy.2020.00004 JIP: 3.718, Google Scholar: 7 citations]
4. B. Zhao, C. W. MacMinn, B. K. Primkulov, Y. Chen, A. J. Valocchi, J. Zhao, Q. Kang, K. Bruning, J. E. McClure, C. T. Miller, A. Fakhari, D. Bolster, T. Hiller, M. Brinkmann, L. Cueto-Felgueroso, D. A. Cogswell, R. Verma, M. Prodanović, J. Maes, S. Geiger, M. Vassvik, A. Hansen, E. Segre, R. Holtzman, Z. Yang, C. Yuan, B. Chareyre and Ruben Juanes, *Comprehenive comparison of pore-scale models for multiphase flow in porous media*, Proc. Nat. Acad. Sci., 116, 13799 (2019). https://doi.org/10.1073/pnas.1901619116 [JIP: 12.779, Google Scholar: 139 citations]
5. A. Hansen, S. Sinha, D. Bedeaux, S. Kjelstrup, M. Aa. Gjennestad and M. Vassvik, *Relations between Seepage Velocities in Immiscible, Incompressible Two-Phase Flow in Porous Media*, Transp. Porous Media, 125, 565 (2018). https://doi.org/10.1007/s11242-018-1139-6 [JIP: 3.610, Google Scholar: 22 citations]
6. S. Sinha, A. T. Bender, M. Danczyk, K. Keepseagle, C. A. Prather, J. M. Bray, L. W. Thrane, J. D. Seymour, S. L. Codd and A. Hansen, *Effective Rheology of Two-Phase Flow in Three-Dimensional Porous Media: Experiment and Simulation*, Transp. Por. Media, **119**, 77 (2017). https://doi.org/10.1007/s11242-017-0874-4 [JIP: 3.610, Scholar Google: 38 citations]
7. A. Stormo, O. Lengliné, J. Schmittbuhl, A. Hansen, *Soft-Clamp Fiber Bundle Model and Interfacial Crack Propagation: Comparison using a Non-Linear Imposed Displacement*, Front. Phys. **4**, 18 (2016). https://doi.org/10.3389/fphy.2016.00018 [JIP: 3.718, Scholar Google: 8 citations]
8. S. Sinha, J. T. Kjellstadli and A. Hansen, *Local Load-Sharing Fiber Bundle Model in Higher Dimensions*, Phys. Rev. E, 92, 020401(R) (2015). https://doi.org/10.1103/PhysRevE.92.020401 [[JIP: 2.707, Scholar Google: 20 citations]
9. L. Talon, H. Auradou and A. Hansen, *Effective Rheology of Bingham Fluids in a Rough Channel*, Front. Phys. **2**, 24 (2014). https://doi.org/10.3389/fphy.2014.00024 [JIP: 3.718, Scholar Google: 20 citations]
10. K. S. Gjerden, A. Stormo and A. Hansen, *Universality Classes in Constrained Crack Growth*, Phys. Rev. Lett. **111**, 135502 (2013). https://doi.org/10.1103/PhysRevLett.111.135502 [JIP: 9.185, Scholar Google: 33 citations]

A full publication list may be found here.

Monographs/Books 2011-2020

1. J. Feder, E. G. Flekkøy and A. Hansen, *Physics of Flow in Porous Media*, (Cambridge University Press, 2022), ISBN 9781108989114. [Google Scholar: 5 citations].

2. A. Hansen, P.C. Hemmer and S. Pradhan, *The Fiber Bundle Model: Modeling Failure in Materials* (Wiley-VCH, Berlin, 2015), ISBN 9783527671960. [Google Scholar: 141 citations]

Edited Books/Volumes 2013-2022

1. A. Gruening, T. Hartung, A. Hutt, R. Robeva and A. Hansen, *Machine Learning in Natural Complex Systems* (Frontiers Media, Lausanne, 2022).
2. F. Kun, A. Hansen, P. Ray and S. Pradhan, *The Fiber Bundle* (Frontiers Media, Lausanne, 2021).
3. A. Hansen, *Editor's Pick 2021* (Frontiers Media, Lausanne, 2021).
4. A. Hansen, E. Moser, M. Perc, L. Pavesi, R. von Steiger, N. X. Fang, J. W. F. Valle, J. De Boer, C. F. Klingenberg, L. E. Marcucci, J. Van Der Gucht and A. M. Zagoskin, *Frontiers in Physics: Rising Stars* (Frontiers Media, Lausanne, 2020).
5. D. Bedeaux, E. G. Flekkøy, A. Hansen, S. Kjelstrup, K. J. Måløy and O. Torsæter, editors, *Physics of Porous Media*. (Frontiers Media, Lausanne, 2020).

Selected Invited Presentations to International Conferences and Advanced Schools 2013-2022

1. Invited talk, Gordon Conference *Flow and Transport in Permeable Media*, Les Diablerets, July 2022.
2. Invited talk, *Workshop on Non-Newtonian Flow in Porous Media*, Fortaleza, June 2022.
3. Invited talk, Lorentz Center workshop *Mixing in Porous Media*, Leiden, February 2020.
4. Plenary talk at *XXVI Sitges Conference on Statistical Mechanics*, Sitges, May 2019.
5. Invited talk at *NBI Winter School on Computational Modeling*, Geilo, March 2019.
6. Invited lecture at *NANOCEM workshop on Deterioration Mechanisms*, Dublin, November 2018.
7. Invited lecture series, *Plasticity and Failure in Disordered Materials (Fracmeet 2018)*, Chennai, February 2018.
8. Invited talk at *Conference on Statistical Physics SigmaPhi 2017*, Korfu, July 2017.
9. Invited talk *at 2nd IMPA Interpore Conference on Porous Media*, Rio de Janeiro, October 2016.
10. Invited talk at the *Annual Interpore Conference*, Cincinnati, May 2016.
11. Invited talk at *the XXVII IUPAP Conference on Computational Physics*, Guwahati, December 2015.
12. Invited talk at the *Interpore Annual Conference*, Padova, May 2015.
13. Invited talk at the *International Conference on Continuum Models and Discrete Systems 13*, Salt Lake City, July 2014.
14. Invited talk at *Conference on Statistical Physics SigmaPhi 2014*, Rhodos, June 2014.
15. Invited lecture series, *5th Warsaw School of Statistical Physics*, Kazimierz, June 2013.
16. Invited talk at *Fracmeet 2013*, Chennai, January 2013.
17. Invited talk at the *6th International Workshop on Nonequilibrium Thermodynamics*, Røros, August 2012.

Major Contribution to the Early Careers of Excellent Researchers

Former students and postdocs that have made a name for themselves:

- Eyvind Aker (PhD student) Senior Research Scientist, Norwegian Computing Center, geophysics.
- Eivind Almaas (MSc student) Professor, NTNU, biological physics.
- Harold Auradou (PhD student) Directeur de Recherche CNRS, Univ. Paris-Saclay, porous media.
- Paul Dommersnes (MSc student) Professor, NTNU, complex fluids.
- Sigmund Mongstad Hope (PhD student) Senior Research Scientist, Polytec AS, fluid mechanics.
- Joachim Mathiesen (Postdoc) Associate Professor, Niels Bohr Institute, complex fluids.
- Srutarshi Pradhan (Postdoc) Researcher, NTNU, fracture and material stability.
- Thomas Ramstad (PhD student) Senior Scientist, Equinor, flow in porous media.
- Santanu Sinha (postdoc) Researcher, NTNU, flow in porous media.
- Ingve Simonsen (PhD student) Professor, NTNU, optics and photonics.
- Renaud Toussaint (Postdoc) Directeur de Recherche CNRS, Université de Strasbourg, geophysics.