

Kell Mortensen



Affiliation and official address:

Professor,
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Date and Place of birth: Febr. 21, 1952, Rønne, Denmark
Nationality: Danish
Marital Status: Married to microbiol. Susanne Fogh, Two children (Bjarke 1981 and Rune 1985).
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Education

1981 Ph.D. Technical University of Denmark, Physics Lab. III.
Thesis: *Transport Properties of 1D Organic Conductors*
1977 M.Sc. Engineering (Electro Physics) Technical University of Denmark,
1971 Gymnasium, Rønne Statsskole

Career/Employment

2007- Professor at University of Copenhagen, Head of Nanobio Science / Biophysics at KU-LIFE
2000-2007 Head of Program Polymer Analysis and Structure, Polymer Dept., Risø
1995-2007 Research Professor, SNF/Risø. DK
1992-1995 Senior Scientist, Dept. Solid State Physics, Risø. DK
1984-1992 Scientist, Dept. Solid State Physics, Risø. DK
1982-1984 SNF-Senior Fellowship, DTU and Risø, Denmark
1981 Project Scientist, Danish National Bank, Copenhagen
1981 Visiting Scientist, IBM TJ Watson Res. Center, NY, USA
1981 SNF-Researcher, Phys. Lab III, DTU, Lyngby, Denmark
1980-1980 IBM-World Trade Fellow, IBM TJ Watson Res Center, NY
1977-1979 DTU-Fellowship, Phys. Lab. III, DTU, Lyngby, Denmark

Specialization

Main field: Biophysics, Polymer Physics, Materials Sciences
Main methods: Small-Angle X-Ray and Neutron Scattering, Light Scattering
Current research interests: Molecular Self-Assembly; Lipid Membranes, Nano discs, Polymer structure and dynamics.

Management skills, include

Head of Nanobio Science, LIFE, University of Copenhagen 2010-
Head of Biophysics Group, LIFE, University of Copenhagen 2007-
Chairman of the Graduate School at the Faculty of Life Sciences, University of Copenhagen, 2007-
Head of Program Polymer Analysis and Structure, Polymer Dept., Risø 2000-2007
Project leader for Small-angle Scattering at Risø, 1985-2000
Head of Instrument Task Group, SoftComp EU-PF7 Center of Excellence, 2005-2007
Co-Founder of Danish Polymer Centre, Techn. University of Denmark, 2000
Co-Founder of Program for Synthetic Biology, University of Copenhagen 2009

Membership of Professional Societies,

Member of 'Ingeniørforening i Danmark', incl. Polymer Section
Member of Danish Physical Society
Member of American Physical Society
Member of Danish Neutron Scattering Society
Member of American Neutron Scattering Society
Member of Swiss Neutron Scattering Society

Recent Funding

Carlsberg Foundation: 2010 Rheometer DKK 400.000
UNIK Synthetic Biology. 2009. (together with T Bjørnholm (chair), B Lindberg Møller, U Gether). DKK 120.000.000
Danish Research Council for Nature and Universe (FNU) 2008: LIFE-SAXS. DKK 2.250.000
Carlsberg Foundation: 2008 LIFE-SAXS DKK 1.000.000
Lundbeck Foundation: 2008 LIFE-SAXS DKK 1.000.000
Program for Strategic Growth Technologies 2009 McXtrace. DKK 8.000.000 (together with NBI (chair), UC-LIFE, RISØ, JJ-Xray)
Danish Research Council for Nature and Universe (FNU) 2008: DANSCATT DKK 11.500.000 (Chaired by NBI)
Danish Research Infrastructure. 2007. ESS pre-studies DKK 1.000.000

Honors, Awards, Personal Fellowships

Dansk Kemi (Journal): Article of the Year 2005
SNF Research Professor Award 1995
SNF Senior Fellowship 1982-84
SNF Fellowship 1981
IBM-World Trade Fellowship 1980

Boards, Committees, includes

Board member of Professional Organizations

The Danish Board of Technology, Board of Representatives, 2011-
Danish Research Council: Natural Sciences (FNU), Member of Council 2009-
The Danish National Research Foundation (Danmarks Grundforskningsfond) Board of Directors 1999-2008

Association of Max-Lab Users, FASM, 2010-
Danish National Committee for Crystallography, 2009-
DANSSK, The Danish Neutron Scattering Society 1998-;
Chairman of DANSSK since 2003-
DANSCATT, FNU-Instrument Centre for X-ray Synchrotron and Neutron Sciences 2003-
Chairman of DANSCATT 2005-2007
European Neutron Scattering Association ENSA 2003-
Elected Scientific Secretary for ENSA, 2004-2007
European Large Scale Network for Neutrons and Myons, NMI3 2004-2010
Society of Risø Engineers. Board 1994-1999
Solid State Section of the Danish Physical Society. Board 1984-1998

Advisory Board / Editorial Board for Professional Journals

Journal of Macromolecular Science - Physics (Marcel Dekker Inc.)
Polymers <http://www.mdpi.com/journal/polymers/> (MDPI Publishing)

Scientific Advisory Committee for International Research Facilities

Instrument reviewing committee at ESRF, Grenoble FR, 2011.
Instrument reviewing committee at ESRF, Grenoble FR, 2008.
Neutron research at NIST, USA, 2006-
Soft-matter research at ESRF, Grenoble FR, 2008-10
Neutron-scattering research at FRM2 München, Germany, 2006- 10
Neutron-scattering research at Paul-Scherrer Institute, Switzerland, 2004-2008
European program for utilizing neutron-scattering at Research Centre Jülich, 2001-2004

Scientific Advisory Committee for Research Programs and Initiatives

Centre of Excellence under the Research Council for Natural Sciences of Finland, 2002-2008
ESS Instrumental Task Group (ITG) on Small Angle Scattering, 2000 - 2003
ESS Scientific Advisory Group (SAC) on Soft Matter, 2000 - 2003
ESS Working group on Large Scale Structures 1995-1996
ESS-Autrans group on Polymers and Soft Matter 1996
Board of ESS-S, European Spallation Source, Scandinavian initiative 2000-
Chairman of Scientific Group of ESS-S, 2002-;
Vice-chair of ESS-S Consortium, 2004-

Research Schools

Head of the Graduate School at the Faculty of Life Sciences, University of Copenhagen, 2010
Chairman of the Graduate School at the Faculty of Life Sciences, University of Copenhagen, 2007-
Graduate School for Polymer Science. Board Member 2003-
Graduate School for Biophysics. Board Member 1996-2001

Publications (<http://www.dina.kvl.dk/~kell/kell-publ.pdf>)

- Papers in refereed journals: 304 (incl. 5Nature, 1Science, 27PRL, 6EPL)
- Book Chapters: 20
- Books (Ed): 3
- Popular articles: 16
- Invited talks, scientific meetings: > 100
- Invited Lectures at Summer Schools: ~10
- Contributed presentations in scientific meetings: more than 150 (some with proceedings)

Citations

ISI URL: <http://www.researcherid.com/rid/A-5066-2009>
Google URL: <http://scholar.google.com/citations?user=7bLw3LIAAAAJ>

Paper cited more than **11.800** according to ISI Web of Science and Google Scholar, **H-index 59**, Average citations per article: 37.6.

31 with more than 100 citations including:

- K Bechgaard, CS Jacobsen, K Mortensen, HJ Pedersen N Thorup *Solid State Comm.* 33, 1119, 1980: 595 Citations
- K Mortensen, JS Pedersen *Macromol* 26 805 (1993) 485 Citations
- R Cubitt, Em Forgan, G Yang, Si Lee, Dm Paul, Ha Mook, M Yethiraj, Ph Kes, Tw Li, Aa Menowsky, Z Tarnawski, K Mortensen *Nature* 365 407 (1993) 369 Citations
- K Mortensen, W Brown *Macromol* 26 4128 (1993): 219 Citations
- K Mortensen, W Brown, B Norden, *Phys Rev Lett* 68 2340 (1992): 209 Citations
- K Mortensen, et al. *Phys Rev Lett* 46 1234 (1981) 161 Citations
- K Mortensen. *J. Phys. Cond. Matt* 8 A103 (1996): 140 Citations
- K Mortensen. *Europhys Lett* 19 599 (1992): 132 Citations

Some Key Publications:

- Kell Mortensen. Nicholas Skar-Gislinge, Jens Bæk Simonsen, Kell Mortensen, Robert Feidenhans'l, Stephen Sligar, Birger Lindberg Møller, Thomas Bjørnholm, Lise Arleth. Elliptical Structure of Phospholipid Bilayer Nanodiscs Encapsulated by Scaffold Proteins: Casting the Roles of the Lipids and the Protein. *Journal of the American Chemical Society* 132, 13713–13722, 2010.
- Kell Mortensen and Martin E. Vigild. Reinvestigation of the modulated lamellar structure in diblock copolymers. *Macromolecules*, 42:1685–1690, 2009
- Kell Mortensen, Urs Gasser, Selmiye Alkan Gürsel, and Günther G. Scherer. Structural Characterization of Radiation Grafted Block Copolymer Films, using SANS Technique. *J. Polymer Science Part B. Polymer Physics*, 46: 1660–1668, 2008
- Kell Mortensen. Three-dimensional crystallographic determination of the cubic bcc morphologies of shear aligned block copolymer systems. *J. Polymer Science Polymer Physics*, 42:3095–3101, 2004.
- Kell Mortensen. Structural Studies of Polymer Systems using Small-Angle Neutron Scattering,. *Advanced Functional Molecules and Polymers Gordon & Breach Sci Ch* 8. OPA, New York, H.S. Nalwa edition, 2001.
- Dietmar Schwahn, Kell Mortensen, Henrich Frielinghaus, and Kristoffer Almdal. Crossover from 3D-Ising to isotropic Lifshitz critical behavior in a mixture of a homopolymer and diblock copolymer. *Physical Review Letters*, 82:1756–1759, 1999.
- Morten R. Eskildsen, Peter L. Gammel, E.D. Isaacs, C. Detlefs, Kell Mortensen, and David J. Bishop. Compound refractive optics for the imaging and focusing of long wavelength neutrons. *Nature*, 391:563–566, 1998.
- Kell Mortensen. Structural studies of aqueous solutions of PEO-PPO-PEO triblock copolymers, their micellar aggregates and mesophases. a small-angle neutron scattering study. *J. Physics Condensed Matter*, 8:A103–A124, 1996.
- T. Hønger, Kell Mortensen, John H. Ipsen, Jesper Lemmich, Rogert Bauer, and Ole G. Mouritsen. Anomalous swelling of multilamellar lipid bilayers in the transition region by renormalization of curvature elasticity. *Physical Review Letters*, 72 3911–3914 (1994).
- Robert Cubitt, E.M. Forgan, Steven L. Lee, D.Mck. Paul, H.A. Mook, M. Yethiraj, P.H. Kes, T.W. Li, A.A. Menovsky, Z. Tarnawski, and Kell Mortensen. Direct observation of magnetic flux lattice melting and decomposition in the high T_c superconductor Bi₂Sr₂CaCu₂O₈. *Nature*, 365:407–411, 1993.
- Kell Mortensen, Wyn Brown, and Bengt Nordén. Inverse melting transition and evidence of threedimensional cubatic structure in a block-copolymer micellar system. *Physical Review Letters*, 68:2340–2343, 1992.
- Klaus Bechgaard, Claus S. Jacobsen, Kell Mortensen and Hans J. Pedersen, and Niels Thorup. The properties of five highly conducting salts: (TMTSF)₂X, X=PF₆, AsF₆, SbF₆, BF₄, NO₃, derived from tetramethyltetraselenafulvalene (TMTSF). *Solid State Commun.*, 88:963–969, 1993. *Solid State Commun.* 33 1119–1125 (1980).
- Kell Mortensen and Jan S. Pedersen. Structural studies of the micelle formation of PEO-PPO-PEO triblock copolymer triblockcopolymer dissolved in aqueous solution. *Macromolecules* 26 805–812 (1993).
- Marc Hillmyer, Frank S. Bates, Kristoffer Almdal, Kell Mortensen, and Anthony Ryan. Complex lyotropic-like phase behavior in solvent-free surfactants. *Science*, 271:976–978, 1996.

Review activities, include

Research Foundations:

- NSF (USA), NRF (Sweden), NFR (Norway) DFG (Germany), Finnish Academy, ACS (USA),

Journals:

- Nature, Nature Materials, Science, Phys.Rev.Lett., Phys.Rev.E, Eur.Phys.Lett., Macromolecules, Langmuir, Adv.Materials, J.Phys.Chem., J.Appl.Cryst.

Organization of Meetings/Schools, include:

- European Conference on Neutron Scattering, Lund SE, June 2007 (co Chair)
- Joint Scandinavian Neutron Scattering Meeting, Gothenburg SE, Oct. 2005. (co-Chair)
- International Symposium On Polymer Conetworks, Gels And Membranes - Science, Technology And Applications, Prague Sept. 2005 (Adv)
- 19th Conf. European Colloid and Interface, Geilo, Norway, Sept. 2005 (Adv)
- 2nd Scandinavian Symposium on Small-angle Scattering, Lyngby Feb. 2005 (Co Chair)
- B Lebech Symposium and DANSSK-Annual meeting, Roskilde Sept. 2004 (Chair)
- Scandinavian Symposium on Small-angle Scattering, Lund January 2003 (co Chair)
- Summer School: Hairy Interfaces and Stringy Molecules. Odense, Aug 2003. (Adv)
- Zuoz Summer School on 'Structure and Dynamics of Soft Condensed Matter', Switzerland, August 2003. (Adv)
- Prague Meeting on Macromolecules: Scat. Meth. Invest. Polymers July 2001 (Adv)
- EPS-CMD18 Conf. on Transient Phen. in Soft Matter, Montreux 2000 (Chair)
- EPF Workshop on Polymer Surfactant, KolloKolle 2000 (Advisory)

- 2nd European Conference on Neutron Scattering, Budapest 1999 (Advisory)
- Unifying Principles for Engineering Soft Materials, Risø, Denmark June, 1998 (Co-Organizer)
- School on Scattering Methods in Polymers, Risø Denmark 1989 (Chair)
- Winter School on Modern Experimental Physics, Risø Denmark 1991 (Chair)
- Annual Meetings of Danish Physical Society, 1991-1999 (Co-chair)

Educational Activities

Lecturing include

- Graduate Course in Polymer Physics (7.5ECTS) for several years (DTU)
- Graduate Course on Experimental Techniques in Soft Matter Sciences for several years (RUC)
- Graduate Course on Experimental Techniques in Molecular Biology for several years (SDU)
- Graduate Course in Scattering Techniques applied for Polymer Science (DTU)
- Graduate Course in Spectroscopical Techniques Applied to Molecular Biophysics (KVL)

Supervising Ph.D. students and Post Docs, include

- Stine Rønholt, Structure of Fats. Will finish PhD 2012
- Søren Midtgaard Røi, Synthetic Biology and synthesis. Will finish PhD 2012.
- Søren Kynde, Small-angle scattering and MC-simulations. Will finish PhD 2012
- Hanne Sørensen. New cheese products. Will finish 2011
- Jacob Kirkensgaard, Self-assembly star-shaped molecules (KU-LIFE) Finish PhD 2010 (Now post doc KU-LIFE)
- Brian Pauw, (DTU PhD 2009) Polymer fibres. (BP now post doc at AU and Spring8).
- Torben Ishøy (KU PhD 2004), Structural Characterization of Multi-Lamellar Lipid Bilayers. (TI now at Edlund AS)
- Rūya Eskimergen (DTU PhD 2003), Structural Study of Diblock Copolymer Phase Behavior (RE now at Novo Nordisk)
- Rita Carrotta (KU-LIFE PhD 2003), *Intermediate Oligomers in b1gA heat aggregation*. (RC now at NRIBF Palermo, Italy)
- Jens Høg Truelsen (DTU PhD 2002): *Synth. amphiphilic block copolymers by ATRP*, (JHT now at VersaMatrix)
- Antonio Falcao (Lisbon/Risø PhD 1995), *Scaling and Structural Parameters in Cross-Linked PDMS* (now at Nat.Lab., Portugal)
- Dorte Posselt (DTU PhD 1991), *Thermal and Structural studies of Silica Aerogels* (DP now at Associate Professor at RUC)
- Jens Bæk Simonsen (Post Doc 2008-). Structural studies of lipid nanodiscs and their complexes (KU-LIFE)
- Sandor Balog (post doc 2008-2011) SANS post doc at PSI
- Lise Arleth (Post Doc), Neutron scattering on soft matter materials (LA now associate professor at KU-LIFE)
- Jesper Lemmich (DTU/Risø Post Doc) *Lipid Bilayers studied by Small-Angle Neutron Scattering* (now at Topsøe a/s)
- Christine Papadakis, Block Copolymers (Post doc CP now professor at TU München DE)

Co-supervising MSc. students, include

- Ahsen Hussain (DTU MSc 1995) *Small-Angle X-ray Instrumentation*. Now at Danish Space Research Institute, DK
- Nikolaj Gadegaard (KU MSc 1998), *Block copolymers at Interfaces*. Now at Glasgow University, UK