Curriculum Vitae -- Helge Bøvik Larsen

Personal details
Name: Helge Bøvik Larsen
Born: 21.05.1969 in Stavanger, Norway
Nationality: Norwegian
Marital status: Married. Two children.

Present professional status
Present position: Professor of Materials Physics at the University of Stavanger (UiS) and Vice Dean of Research and Innovation at the Faculty of Science and Technology (TN), UiS.
Address: Department of Mathematics and Physics, N-4036 Stavanger, Norway
Contact: e-mail: helge.b.larsen@uis.no; phone: + 47 51832174

Highest academic degree
Dr.ing. Materials Physics -- 1997, Norwegian University of Science and Technology (NTNU), Trondheim.
Thesis' title: ``*Dynamical Effects in the Scattering of X-rays from Perfect and Imperfect Crystals*''

Positions held
2014-present: Professor of Materials Physics, UiS
2017-2026: Vice Dean of Research and Innovation, TN-faculty, UiS.

2006-2013: Associate Professor of Physics, UiS
2011-2012: Visiting scientist. ESRF - Swiss-Norwegian Beamlines, Grenoble, France
2010-2011: Vice Dean of Education. Faculty of Science and Technology, UiS
2006-2007: Vice Dean of Education. Faculty of Science and Technology, UiS
1999-2006: Associate Professor of Materials Science. Stavanger University College/UiS
2004-2005: Visiting Scientist, HASYLAB, Hamburg, Germany
2003-2004: Vice Dean. Faculty of Science and Technology; Stavanger University College
2001-2003: Head of Department. Mechanical Engineering and Materials Science
1998-1999: Associate Professor of Physics. Stavanger University College
1997-1998: Research scientist. Norwegian Defense Research Establishment, Kjeller
1994-1997: Doctoral student. HSR/HiS/NTNU
1993-1994: Laboratory supervisor. Rogaland University Center

Main Research Fields of interest
Diffraction physics; materials- and solid-state physics. X-ray optics. Theoretical and applied/experimental diffraction-based research.

X-ray physics: diffraction and scattering properties in crystalline systems
The main interest is here related to multiple beam coherent/incoherent scattering processes that may occur in a crystalline sample bathed in an X-ray (or neutron) beam. The research, both experimental and theoretical, has been mainly focused onto effects related to the finite size and the degree of perfectness of the crystalline medium in question. Theoretical works are related to mathematical modeling of primary extinction and three-beam diffraction phenomena using Mathematica® . The *Takagi-Taupin Equations* and the *Fundamental Equations of Dynamical Theory* represent the basic equations that are applied to explore beam-propagation in various model systems. Ongoing work includes determination of chirality in light-atom organic molecule using three-beam diffraction; diffraction and in single crystal compound refractive lenses; diffuse dynamical diffraction.

Collaborations: The Swiss-Norwegian Beamline (SNBL), Grenoble, France. Department of Physics, NTNU, Trondheim, NORWAY; Immanuel Kant Baltic Federal University, Kaliningrad, Russia

Supermolecular ordering in soft condensed matter
Characterization of long range ordering in nano-assemblies in liposome-lipoplex solutions using small angle diffraction methods (synchrotron X-rays and neutrons).
Current activities includes characterization of novel lipoplexes with DNA-delivery potential within gene therapy: structural transitions and ordering modes (ordering dimensionality) and particle size distributions for liposomes/lipoplexes. Thermal properties, defect formation and radiation damage
Collaborations: Roskilde University; NTNU; Weill-Cornell Medical College, Qatar. University of Victoria, Canada.

Phase transitions, structural and electronic properties in alloys and inorganic materials
A major research theme is the study of temperature driven phase transformation and precipitation reactions in alloys and inorganic materials. The main experimental characterization techniques are X-ray synchrotron based and include: single crystal diffraction, diffuse scattering, powder diffraction and fluorescence XAS (X-ray Absorption Spectroscopy). The main focus is on the evolution of crystallographic, structural and electronic properties. Ongoing research projects are related to: Precipitation of embedded nano-particles in the Al-Mg-Zn ternary alloy system; Fermi-surfaces and Kohn-anomalies; symmetry aspects and intersection point groups. Phase transitions and high-*T* properties in the superionic conductor Ag_2SO_4. Phase transitions in inclusion compounds like ferrocene-thiourea.
Collaborations: The Swiss-Norwegian Beamline (SNBL), Grenoble, France. NTNU.

Publications

Over 70 peer-reviewed journal- and conference papers.

The most recent:

Ramsnes, Stian; Larsen, Helge Bøvik; Thorkildsen, Gunnar and Nicholson, David (2023). Twin-formations in ferrocene-thiourea chlatration single crystals. *Crystal Research and tech*.

Ramsnes, Stian; Larsen, Helge Bøvik and Thorkildsen, Gunnar (2020). MaXrd updtated with emphasis on model construction and reciprocal space mapping. *Journal of Applied Crystallography*, **53**, 1620-1624.

Dommersnes, Espen; Khalifeh, Mahmoud and Larsen, Helge Bøvik (2020). Potential utilization of Neutron Logging Technology for Casing Cement Evaluation – Feasibility Study. *Proceedings of SPE*, **202973**-MS, 1-15.

Ramsnes, Stian; Larsen, Helge Bøvik and Thorkildsen, Gunnar (2019). Using Mathematica as a platform for crystallographic computing. *Journal of Applied Crystallography*, **52**, 214-218.

Zhang, Qiuyuan; Polikarpov, Maxim; Nataliya, Klimova; Larsen, Helge Bøvik; Mathiesen, Ragnvald; Emerich, Hermann; Thorkildsen, Gunnar; Snigireva, Irina; Snigirev, Anatoly (2019). Investigation of glitches induced by single-crystal diamond compound refractive lenses based on crystal orientation. *AIP Conference Proceedings*. ISSN 0094-243X. Volum **2054.**

Zhang, Qiuyuan; Polikarpov, Maxim; Klimova, Nataliya; Larsen, Helge Bøvik; Mathiesen, Ragnvald; Emerich, Hermann; Thorkildsen, Gunnar; Snigireva, Irina; Snigirev, Anatoly (2018). Investigation of `glitches' in the energy spectrum induced by single-crystal diamond compound X-ray refractive lenses. *Journal of Synchrotron Radiation*. ISSN 0909-0495. s. 1-10. DOI: 10.1107/S1600577518014856.

Jubeli, Emile; Maginty, Amanda B.; Khalique, Nada Abdul; Raju, Liji; Nicholson, David Graham; Larsen, Helge Bøvik; Pungente, Michael D.; Goldring, William P.D. (2017). Cationic lipids bearing succinic-based, acyclic and macrocyclic hydrophobic domains: Synthetic studies and in vitro gene transfer. *European Journal of Medicinal Chemistry*. ISSN 0223-5234. Volum **125**. s. 225-232. DOI: 10.1016/j.ejmech.2016.09.027.

Khalifeh, Mahmoud; Saasen, Arild; Larsen, Helge Bøvik; Hodne, Helge (2017). Development and Characterization of Norite-Based Cementitious Binder from an Ilmenite Mine Waste Stream. *Advances in Materials Science and Engineering*. ISSN 1687-8434. Volum **2017**. DOI: 10.1155/2017/6849139.

Khalifeh, Mahmoud; Saasen, Arild; Vrålstad, Torbjørn; Larsen, Helge Bøvik; Hodne, Helge (2016). Experimental study on the synthesis and characterization of aplite rock-based geopolymers. *Journal of Sustainable Cement-Based Materials*. ISSN 2165-0373. Volum **5**. Hefte 4. s. 233-246. DOI: 10.1080/21650373.2015.1044049.

Larsen, Helge Bøvik; Thorkildsen, Gunnar; Nicholson, David Graham; Pattison, Philip (2016). Thermal induced structural properties of silver(I) sulphate (Ag_2SO_4). Crystal research and technology (1981). ISSN 0232-1300. Volum 51. Hefte 12. s. 730-737. DOI: 10.1002/crat.201600173.

Parvizi-Bahktar, P.; Mendez-Campos, J.; Raju, Liji; Khalique, Nada Abdul; Jubeli, Emile; Larsen, Helge Bøvik; Nicholson, David Graham; Pungente, Michael D.; Fyles, Thomas Murray (2016). Structure-activity correlation in transfection promoted by pyridinium cationic lipids. *Organic and biomolecular chemistry*. ISSN 1477-0520. Volum **14.** Hefte 11. s. 3080-3090. DOI: 10.1039/c60b00041j.

Jubeli, Emile; Maginty, Amanda B; Khalique, Nada Abdul; Raju, Liji; Abdulhai, Mohamad; Nicholson, David Graham; Larsen, Helge Bøvik; Pungente, Michael D.; Goldring, William PD (2015). Next generation macrocyclic and acyclic cationic lipids for gene transfer: Synthesis and in vitro evaluation. *Bioorganic & Medicinal Chemistry*. ISSN 0968-0896. Volum **23**. Hefte 19. s. 6364-6378. DOI: 10.1016/j.bmc.2015.08.032.

Thorkildsen, G. & Larsen, H.B. The anisotropic displacement tensor -- completing the picture.
Acta Crystallographica (2015) Section **A**71, 467-470.

Larsen, Helge Bøvik; Thorkildsen, Gunnar; Natland, Sølvi; Pattison, Philip (2014). Average crystal structure(s) of the embedded meta stable η′-phase in the Al-Mg-Zn system. *Philosophical Magazine*. ISSN 1478-6435. Volum **94.** Hefte 15. s. 1719-1743. DOI: 10.1080/14786435.2014.895440.

Parvizi, Paria; Jubeli, Emile; Raju, Liji; Khalique, Nada Abdul; Almeer, Ahmed; Allam, Hebatalla; Manaa, Maryem; Larsen, Helge Bøvik; Nicholson, David Graham; Pungente, Michael; Fyles, Thomas (2014). Aspects of nonviral gene therapy: Correlation of molecular parameters with lipoplex structure and transfection efficacy in pyridinium-based cationic lipids. *Internation Journal of Pharmaceutics*. ISSN 0378-5173. Volum **461**. Hefte 1-2. s. 145-156. DOI: 10.1016/j.ijpharm.2013.11.045.

Thorkildsen, Gunnar; Larsen, Helge Bøvik (2014). Crystallography of embedded particles in Al-Mg-Zn alloys. Symmetry analysis. *Journal of Applied Crystallography*. ISSN 0021-8898. Volum 47. Hefte 5. s. 1736-1748. DOI: 10.1107/S1600576714019414.

Øpstad, Christer Lorentz; Zeeshan, Muhammad; Zaidi, Asma; Sliwka, Hans-Richard; Partali, Vassilia; Nicholson, David Graham; Surve, Chinmay; Izower, Mitchell A.; Bilchuk, Natalia; Lou, Howard H.; Leopold, Philip; Larsen, Helge Bøvik; Liberska, Alexandra; Khalique, Nada Abdul; Raju, Liji; Flinterman, Marcella; Jubeli, Emile; Pungente, Michael D. (2014). Novel cationic polyene glycol phospholipids as DNA transfer reagents - Lack of a structure-activity relationship due to uncontrolled self-assembling processes. *Chemistry and Physics of Lipids*. ISSN 0009-3084. Volum **183**. s. 117-136. DOI: 10.1016/j.chemphyslip.2014.04.006.

Larsen, Helge Bøvik; Thorkildsen, Gunnar; Nicholson, David Graham (2012). X-ray attenuation factors in fluorescence intensity emission-effects of finite sample size. *Physica Scripta*. ISSN 0031-8949. Volum **86.** Hefte 6. DOI: 10.1088/0031-8949/86/06/065601.

Sjølyst-Kverneland, Atle; Hansen, Vidar; Thorkildsen, Gunnar; Larsen, Helge Bøvik; Pattison, P; Li, X.Z.; Gjønnes, Jon (2011). Transformations and structures in the Al-Zn-Mg alloy system: A diffraction study using synchrotron radiation and electron precession. Materials Science & Engineering: A. ISSN 0921-5093. Volum 528. Hefte 3. s. 880-887. DOI: 10.1016/j.msea.2010.10.001.

Sjølyst-Kverneland, Atle; Hansen, Vidar; Thorkildsen, Gunnar; Larsen, Helge Bøvik; Pattison, Philip; Li, Xz; Gjønnes, Jon (2010). Transformations and structures in the Al-Zn-Mg alloy system: A diffraction study using synchrotron radiation and electron precession. *Materials Science & Engineering:* A. ISSN 0921-5093. DOI: 10.1016/j.msea.2010.10.001.

Thorkildsen, Gunnar; Larsen, Helge Bøvik; Beukes, Jon Are (2006). Angle calculations for a three-circle goniostat. *Journal of Applied Crystallography*. ISSN 0021-8898. Volum **39.**

For earlier publications: see full publication list.

Peer-review assignments

I am regularly used as referee on IUCr-journals*: Acta Crystallographica* Section **A**, *Journal of Applied Crystallography* and *Journal of Synchrotron Radiation*. Similarly also for IOP-journals: *Materials Research Express, Journal of Physiological Measurements*. I have also reviewed textbooks from Oxford University Press and Cappelen Damm.

Academic administrative activities, assignments and project management

2010-present: National delegate to ESUO (European Synchrotron Users Organization)
2011-present: Member of SCALES (Symposium on Collaborative Activities at Large Scale Experimental Systems
2011-present: Member -- local board of TEKNA (professional organization)
2007-present: Member (and Vice Chair 2010-2012, 2015-2017) -- National Council of Physics
2018-present: Member (from 2021 Chair), National Publication Committee for Physics
2016-present: Member, Board of National Center of Neutron Scattering
2013-present: Member, National Steering Committee for the Swiss-Norwegian Beamlines
2020-present: Member, Working group for development of a National Strategy on Synchrotron and Neutron related research.
2006-2012: Member -- Steering and Advisory Committee of the Swiss-Norwegian beamlines
(SNBL) at the European Synchrotron Radiation Facility (ESRF)
2010-2011: Member -- National Committee for Research Strategy within Physics
2007-2010: Member -- Norwegian Research Council's Program Board for Synchrotron Related Research (SYNKROTRON)
2005-2005: Member -- National Committee for Research Strategy within Materials Science
2000-2007: Member -- (and from 2005 Chair) Norwegian Advisory Panel for Synchrotron related Research

Membership in learned societies and professional organizations

- Member of the Norwegian Academy of Technological Sciences
- Member of the Norwegian Physical Society

- Member of the International Union of Crystallographers
- Member of TEKNA (professional organization)

Supervision, teaching and programme development
Since 1998 I have extensively taught university courses at all academic levels (BSc, MSc and PhD). These include materials science and materials physics; general physics (mechanics), elasticity theory, thermodynamics, fluid mechanics, experimental physics, solid state physics, X-ray diffraction physics and crystallography.
Extensive supervision of BSc and MSc thesis candidates.
I have supervised 4 PhD-candidates to completion.
In charge of establishing the first version of the full study programs (BSc, MSc, PhD) in mathematics and physics at UiS.

Search-, selection and evaluation committee work

- Member -- appointment committee for new vice rector of research (2022)
- Chair – evaluation committee for the appointment of new Director at SNBL/ERSF (2021)
- Member of evaluation committees for individual promotions to full professor in Materials Physics
- Member of search-committees for new Dean at the TN-faculty, UiS (2015)
- Member of search-committees for selections of new Department Heads at the TN-faculty, UiS (2011- present)
- Member of search- and selection-committees for associate professor positions in theoretical physics, materials physics and reservoir physics at UiS
- Member of various selection committees for PhD- and post doctoral positions in physics, petroleum physics, applied mathematics, petroleum engineering etc.
- Various engagements as opponent for PhD-dissertations at UiO, NTNU, UiS.
- Numerous engagements in PhD-committees

Service for the Faculty
Since 2017 I have been appointed Vice-Dean of Research and Innovation for the Faculty of Science and Technology. This function require at least 80% of my capacity. In addition to be a member of the Faculty management and having the main responsibility of the Faculty's research and innovation strategy, I also chair the Doctoral Commitee. This meaning having the overall responsibility of the Faculty's ph.d. programme, involving for the time being around 230 candidates. Other important tasks include:

- Member of the Faculty appointment board
- Deputy member of the University committee for research and innovation
- Overall responsibility for research ethics
- Overall responsibility for knowledge transfer / export control of knowledge etc.
- Board member in various centers, networks and clusters (not directly related to physics as such)

List of publications – Helge Bøvik Larsen

August 30, 2017

Peer-reviewed international journal publications

1. THORKILDSEN, G. & LARSEN, H.B.
   Three-beam Diffraction in Finite Perfect Crystals. I. Exploring Laue-Laue and Bragg-Laue scattering using a series expansion approach for the solution of the Takagi-Taupin equations.
   Acta Crystallographica (1998) A**54**, 120-128.

2. LARSEN, H.B. & THORKILDSEN, G.
   Three-beam Diffraction in Finite Perfect Crystals. II. Influence of absorption, resonant scattering and polarization
   Acta Crystallographica (1998) A**54**, 129-136.

3. LARSEN, H.B. & THORKILDSEN, G.
   Three-beam Diffraction in Finite Imperfect Crystals. An analysis of coherent wavefield interactions using statistical dynamical theory.
   Acta Crystallographica (1998) A**54**, 137-145.

4. THORKILDSEN, G. & LARSEN, H.B.
   Primary Extinction in Cylinders and Spheres.
   Acta Crystallographica (1998) A**54**, 172-185.

5. THORKILDSEN, G. & LARSEN, H.B.
   Absorption and Weighted Pathlengths in Cylinders and Spheres.
   Acta Crystallographica (1998) A**54**, 186-190.

6. MATHIESEN, R.H.; MO, F.; EIKENES, A.; NYBORG, T. AND LARSEN, H.B.
   Existence of Two Crystal Structures of the Complex $\alpha - D$-Glucose $\cdot$NaCl $\cdot$ $H_2O(2:1:1)$ Verified by Three- Beam Diffraction Experiments.
   Acta Crystallographica (1998) A**54**, 338-347.

7. THORKILDSEN, G. & LARSEN, H.B.
   Symmetrical X-ray Diffraction in a Perfect $t \times l$ Crystal. Extinction and Absorption
   Acta Crystallographica (1998) A**54**, 416-429.

8. LARSEN, H.B. & THORKILDSEN G.
   An Exact Analytical Expression for the Primary Extinction Factor for a Perfect Spherical Crystal in the Limit $\theta_{oh} \to \pi/2$.
   Acta Crystallographica (1998) A**54**, 511-512.

9. THORKILDSEN, G. & LARSEN, H.B.
   Asymmetrical X-ray Diffraction in a Perfect $t \times l$ Crystal. Extinction and Absorption
   Acta Crystallographica (1999) A**55**, 1-13.

10. THORKILDSEN, G. & LARSEN, H.B.
    X-ray Diffraction in Perfect $t \times l$ Crystals. Ro king curves.
    Acta Crystallographica (1999) Sect. A**55**, 840-854.

11. THORKILDSEN, G.; MATHIESEN, R.H. & LARSEN, H.B.
    Angle Calculations for a Six Circle κ-Diffractometer.
    Journal of Applied Crystallography (1999) **32**, 943-950.

12. THORKILDSEN, G. & LARSEN, H.B.
    X-ray Intensity Patterns from Finite Perfect Crystals.
    Acta Crystallographica (1999) Sect. A**55**, 1000-1013.

13. THORKILDSEN, G.; LARSEN, H.B.; MATHIESEN, R.H. & MO, F
    Three-beam Interference Measurements by a Six Circle κ-Diffractometer.
    Journal of Applied Crystallography (2000) **33**, 49-51.

14. LARSEN, H.B. & G.THORKILDSEN
    Comments on Extinction-corrected mean thickness and integral width used in the program UMWEG98 by Rossmanith
    Journal of Applied Crystallography (2000) **33**, 1447.

15. THORKILDSEN, G.; LARSEN H.B.; SEMMINGSEN, D. & BJAANES, Ø.
    Generalized extinction in bipyramidal crystals.
    Acta Crystallographica (2001) Sect. A**57**, 201-211.

16. Thorkildsen, G.; Larsen, H.B. & Weckert E.
Approximate solution of the Takagi-Taupin equations for a semi-infinite crystal in the three-beam *Laue-Laue* case.
Acta Crystallographica (2001) Sect. A**57**, 389-394.

17. Bae, M. & Larsen, H.B.
Observation of strain induced boundary migration (SIBM) in a high-N austenitic stainless steel.
Praktische Metallographie **39** (2002), 187 - 192.

18. Thorkildsen, G. & Larsen, H.B.
Three-beam X-ray Diffraction in a semi-infinite perfect Crystal
Acta Crystallographica (2002) Sect. A**58**, 252-258.

19. Thorkildsen, G.; Larsen, H.B.; Weckert, E. & Semmingsen, D.
Three-beam X-ray Diffraction – Profile Analysis.
Journal of Applied Crystallography (2003) **36**, 1324-1333.

20. Larsen, H.B.; Thorkildsen, G. & Weckert E.
Three-beam diffraction in an elastically strained crystal plate
Acta Crystallographica (2005) Sect. A**61**, 134-138.

21. Thorkildsen, G.; Larsen, H.B.; Weckert E.; Mo, F. & Mathiesen, R.H.
Three-beam resonant X-ray diffraction in Germanium – Laue transmission cases
Acta Crystallographica (2005) Sect. A**61**, 460-470.

22. Hansen, V.; Kverneland, A.; Larsen, H.B.; Pattison, P.; Vincent, R. & Gjønnes, J.
Structure determination of embedded precipitates by precession electron diffraction and synchrotron radiation: a comparison
Acta Crystallographica (2005). Sect. A**61**, C458.

23. Thorkildsen, G.; Larsen, H.B. & Beukes, J.A.
Angle calculations for a three-circle goniostat.
Journal of Applied Crystallography (2006),**36**, 151-158.

24. Hansen, V.; Kverneland, A.; Thorkildsen, G.; Larsen, H.B.; Pattison, P.; Gilmore, C.; Vincent, R. & Gjønnes, J.
Structure determination of nanosized, semi-coherent Al-Mg-Zn precipitates by precession electron diffraction and synchrotron radiation X-ray diffraction.
Acta Crystallographica (2006), A**62**, s52.

25. Natland,S.; Larsen, H.B.; Thorkildsen, G. and Pattison, P.
Diffraction studies of an Al-Zn-Mg single crystal by synchrotron radiation.
Acta Crystallographica (2008). A**64**, C600.

26. Kverneland, A.; Hansen, V.; Thorkildsen, G.; Larsen, H.B.; Pattison, P.; Li, X.Z. & Gjønnes, J. Transformations and structures in the Al-Zn-Mg alloy system: A diffraction study using synchrotron radiation and electron precession
Materials Science and Engineering **A** 528 (2011), 880-887.

27. Larsen, H.B.; Thorkildsen, G. & Nicholson, D.G.
X-ray attenuation factors in fluorescence intensity emission – effects of finite sample size
Physica Scripta **86** (2012) 065601 (6 pp).

28. Parvizi, P.; Jubeli, E.; Raju, L.; Khalique, N.A.; Almeer, A.; Allam, H.; Manaa, M.A.; Larsen, H.B.; Nicholson, D.G.; Pungente, M.D. & Fyles T.M. Aspects of nonviral gene therapy: Correlation of molecular parameters with lipoplex structure and transfection efficacy in pyridinium-based cationic lipids
International Journal of Pharmaceutics **461** (2014), 145-156.

29. Larsen, H.B.; Thorkildsen, G.; Natland, S. & Pattison, P.
Average crystal structure(s) of the embedded η'-phase in the Al-Mg-Zn system
Philosophical Magazine (2014) **94**, 1719-1743.

30. Øpstad, C.; Zeeshan, M.; Zaidi, A.; Sliwka, H.R.; Partali, V.; Nicholson, D.G.; Surve, C.; Izower, M.A.; Bilchuk, N.; Lou, H.H.; Leopold, P.L.; Larsen, H.B.; Liberska, A.; Khalique, N.A.; Raju, L.; Flinterman, M.; Jubeli, E. & Pungente, M.D. Novel cationic glycol phopholipids as DNA transfer reagents - a lack of structure-activity relationship due to uncontrolled self-assembling processes
Journal of Chemistry and Physics of Lipids **183** (2014), 117-136.

31. Barrier, E.; Braz Fernandes, F.M.; Bujan, M.; Feiters, M.C.; Froideval, A.; Ghijsen, J.; Hase, T.; Hough, M.A.; Jergel, M.; Jimenez, I.; Kajander, T.; Kikas, A.; Kokkinidis, M.; Kover, L.; Larsen, H.B.; Lawson, D.M.; Lawniczak-Jablonska, K.; Mariani, C.; Mikulik, P.; Monnier, J.; Morera, S.; McGuinness, C.; Müller-Buschbaum, P.; Meedom Nielson, M.; Pietsch, U.; Tromp, M.; Simon, M; Stangl, J. & Zanotti, G.
The benefit of the European User Community from transnational access to national radiation facilities
Journal of Synchrotron Radiation (2014). **21**, 638-639.

32. Thorkildsen, G.& Larsen, H.B.
Crystallography of embedded particles in the Al-Mg-Zn system. Symmetry analysis.
Journal of Applied Crystallography (2014) **47**, 1736-1748.

33. Thorkildsen, G.& Larsen, H.B.
The anisotropic displacement tensor – completing the picture.
Acta Crystallographica (2015) Section **A**71, 467-470.

34. Kalifeh, M.; Saasen, A.; Vrålstad, T.; Larsen, H.B. & Hodne, H.
Experimental study on the synthesis of aplite rock-based geopolymer
Journal of Sustainable Cement-Based Materials. (2015) **4**(2). 1044049, 1-14.

35. Jubeli, E.; Maginty, A.B.; Khalique, N.A.; Raju, L.; Nicholson, D.G.; Larsen, H.B; Pungente, M.D.; Goldring, W.P.D.
Next generation macrocyclic and acyclic cationic lipids for gene transfer: Synthesis and *in vitro* evaluation
Bioorganic and Medicinal Chemistry **23** (2015) 6364-6378.

36. Parvizi-Bahktar, P.; Mendez-Campos, J.; Raju, L.; Khalique, N.A.; Jubeli, E.; Larsen, H.B.; Nicholson, D.G.; Pungente, M.D. & Fyles T.M. Towards quantitative structure-activity correlation in transfection promoted by pyridinium cationic lipids
Organic & Biomolecular Chemistry
14 (2016), 3080-3090.

37. Larsen, H.B.; Thorkildsen, G.; Nicholson, D. & Pattison, P.
Thermal induced structural properties of Silver Sulphate (Ag_2SO_4).
Crystal Research and Technology **51** (2016), 730-737.

38. Jubeli, E.; Maginty, A.B.; Khalique, N.A.; Raju, L.; Nicholson, D.G.; Larsen, H.B; Pungente, M.D.; Goldring, W.P.D.
Cationic lipids bearing succinic-based, acyclic and macrocyclic hydrophobic domains: synthetic studies and *in vitro* gene transfer
European Journal of Medicinal Chemistry (2017) Volume **125**, 5 January 2017, Pages 225-232.

39. Kalifeh, M.; Saasen, A.; Larsen, H.B. & Hodne, H.
Development and Characterization of Norite-based Cementitious Binder from an Ilmenite Mine Waste Stream
Advances in Materials Science and Engineering. vol. **2017**, Article ID 6849139, 7 pages, 2017. doi:10.1155/2017/6849139.

40. Busi, M.; Larsen, H.B.; Thorkildsen, G. & Nicholson D.
Self-absorption correction in FLEXAFS for samples

having a circular cross section
Physica Scripta (2017). To be submitted.

41. Thorkildsen, G.; Larsen, H.B. & Pattison, P.
Three beam diffraction and chirality
Journal of Applied Crystallography (2017). In preparation.

Other publications in international journals

1. Mathiesen, R.H.; Mo, F.; Eikenes, A.; Nyborg, T. & Larsen, H.B.
A new technique: Physically Estimated Phases
ESRF Newsletter April 1998 (4 pp.).

Conference proceedings etc.

1. Larsen, H.B. & Thorkildsen, G.
Polarization Effects in Three-Beam Diffraction from Small, Finite Crystals.
Proceedings Int. School of Crystallography. 23rd. course, Erice, Italy (1996). Contributed paper no. I.14.

2. Thorkildsen, G. & Larsen, H.B.
Calculating the Integrated Power as a Function of Wavelength for a Finite Crystal using Mathematica.
Proceedings Int. School of Crystallography. 23rd. course, Erice, Italy (1996). Contributed paper no. II.14.

3. Larsen, H.B. & Thorkildsen, G.
Interference Patterns from Semi-infinite and Finite Crystals.
XVIIIth IUCR Congress, Glasgow, Scotland (1999).
Contributed paper no. 634.

4. Larsen, H.B. & Thorkildsen, G.
Measurements of Dynamical Diffraction Effects in Finite Crystals.
1st. SNBL User's Meeting, Grenoble, France (2000).
Invited paper no. 9.

5. Mathiesen, R.H.; Mo, F.; Eikenes, A.; Nyborg, T. and Larsen, H.B.
Experimental Phase Esimates Applied in Solving Crystallographic Problems – The Structure(s) of $\alpha - D$-Glucose $\cdot$NaCl $\cdot$ $H_2O(2:1:1)$
1st. SNBL User's Meeting, Grenoble, France, (2000).
Invited paper no. 3.

6. Thorkildsen, G. & Larsen, H.B.
Dynamical Scattering of X-rays.
First Norwegian synchrotron radiation users meeting, Gardermoen,(2001).
Invited paper no. 13.

7. Larsen, H.B. & Thorkildsen, G.
Three-beam diffraction – only for phase estimation??
First Norwegian synchrotron radiation users meeting, Gardermoen,(2001).
Contributed paper no. 14.

8. Larsen, H.B. & Thorkildsen, G.
Three-beam diffraction – only for phase estimation??
11'th ESRF User's Meeting, Grenoble, France (2001).
Contributed paper no. 33.

9. Larsen, H.B. & Thorkildsen, G.
Three-beam X-ray diffraction – profile analysis
21'th European Crystallographic Meeting, Durban, South Africa (2003).
Contributed paper no. 770.

10. Kverneland, A.; Hansen, V.; Larsen, H.B.; Thorkildsen, G.; Pattison, P.; Vincent, R. & Gjønnes, J.
Single crystal diffraction by synchrotron radiation of coherent nano-sized age-hardening Al-Mg-Zn particles in isolated aluminum grains.
Third Norwegian synchrotron radiation users meeting, Orkanger,(2005).
Contributed paper no. 4.

11. Hansen, V.; Kverneland, A.; Larsen, H.B.; Pattison, P.; Vincent, R. & Gjønnes, J.
Structure determination of embedded precipitates by precession electron diffraction and synchrotron

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XX IUCr Congress and General Assembly. Firenze, 2005
Published in Acta Cryst. (2005). **A**61, C458.

12. Hansen, V.; Kverneland, A.; Thorkildsen, G.; Larsen, H.B.; Pattison, P.; Gilmore, C.; Vincent, R. & Gjønnes, J.
Structure determination of nanosized, semi-coherent Al-Mg-Zn precipitates by precession electron diffraction and synchrotron radiation X-ray diffraction.
22'th European Crystallographic Meeting, Leuven, Belgium (2006).
Acta Crystallographica (2006), A**62**, s52.

13. Hansen, V.; Kverneland, A.; Thorkildsen, G.; Larsen, H.B.; Vincent, R.; Gjønnes, J. Structure analysis of the η''-precipitate in Al-Zn-Mg alloys by the precession technique in electron diffraction and synchrotron radiation.
19th Nordic Structural Chemistry Meeting; (01/2007).

14. Hansen, V.; Kverneland, A.; Li, X.Z.; Thorkildsen, G.; Larsen, H.B.; Gjønnes, J.
Elektronmikroskopi og synkrotronrøntgen diffraksjonsstudier av transformasjoner og strukturer i 7xxx-legeringer.
29. Metallurgiske Sommermøte; (05/2008).

15. Natland,S.; Larsen, H.B.; Thorkildsen, G. and Pattison, P.
Diffraction studies of an Al-Zn-Mg single crystal by synchrotron radiation.
XIX IUCr Congress and General Assembly. Osaka, Japan, 2008
Acta Cryst. (2008). A**64**, C600

16. Hansen, V.; Oddsen, I.; Larsen, H.B.; Pattison, P.; Thorkildsen, G.; & Gjønnes, J.
Diffuse scattering from zones and particles in the Al-Zn-Mg alloy system.
Sixth Norwegian Synchrotron Radiation User's meeting, Lillehammer (2009) and SNBL & ESRF workshop on diffuse scattering from crystalline materials, Grenoble (2009)

17. Natland,S.; Larsen, H.B.; Thorkildsen, G. and Pattison, P.
Diffraction studies of an Al-Zn-Mg single crystal by synchrotron radiation.
Sixth Norwegian Synchrotron Radiation User's meeting, Lillehammer (2009)

18. Larsen, H.B.
Synchrotron radiation and synchrotrons – necessary large-scale tools in studying structure at atomic level.
NTVA årbok / NTVA yearbook (2012), pp. 43-46.

19. Larsen, H.B.
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NTVA review (2012), p. 13.

20. Parvizi, P.; Jubeli, E.; Raju, L.; Khalique, N.A.; Almeer, A.; Allam, H.; Manaa, M.; Larsen, H.B.; Nicholson, D.G.; Fyles, T.& Pungente, M.
Correlation of molecular parameters with lipoplex structure and the transfection efficacy in pyridium-based cationic lipids.
16th Annual Meeting of the American Society for Gene & Cell Therapy (2013).

21. Parvizi, P.; Khalique, N.A.; Jubeli, E.; Raju, L.; Larsen, H.B.; Nicholson, D.G.; Fyles, T. & Pungente, M.
Correlation of lipoplex morphology and transfection efficacy for pyridium-based cationic lipids by means of synchrotron radiation and X-ray diffraction.
Annual research conference of the Qatar Science Foundation (2013).

22. Maginty, A.B.; Jubeli, E.; Khalique, N.A.; Raju, L.; Abdulhai, M.; Larsen, H.; Nicholson, D.G.; Pungente, M.D.; Goldring, W.P.D.
Design, Synthesis and Biological Evaluation of Gene Delivery Vehicles.
66th Irish Universities Chemistry Colloquium, June 18-20, 2014, Galway, Ireland.

23. Parvizi, P.; Jubeli, E.; Raju, L.; Khalique, N.A.; Almeer, A.; Allam, H.; Manaa, M.; Larsen, H.B.; Nicholson, D.G.; Pungente, M.D. & Fyles, T.M.
Synthesis and study of pyridium-based cationic lipids as gene delivery vectors.
248th National Meeting and Exposition of the American Chemical Society (ACS), San Francisco, August 10-14 (2014). 903.

24. Khalifeh, M.; Saasen, A.; Vrålstad, T.; Larsen, H.B. and Hodne, H
Cap Rock Restoration in Plug and Abandonment Operations; Possible Utilization of Aplite-based Geopolymers for Permanent Zonal Isolation and Well plugging
SPE-175457-MS; SPE Offshore Europe Conference and Exhibition Aberdeen, 8-11 September (2015). 8 pp.

25. Parvizi, P.; Fyles, T.M.; Pungente, M.D.; Jubeli, E.; Raju, L.; Khalique, N.A.; Nicholson, D.G. & Larsen, H.B.
Correlation of molecular properties and supramolecular assembly of cationic lipoplexes with transfection efficiency.
Pacifichem 2015, Honolulu, Hawaii, USA, December 15-20 (2015). 300.

Working papers and technical reports

1. Thorkildsen, G. & Larsen, H.B.
Two-Beam Diffraction in Perfect Crystals Analyzed by Takagi's Equations I.
Working Papers from Stavanger College No. 30 (1997), 288 pp..

2. Thorkildsen, G. & Larsen, H.B.
Two-Beam Diffraction in Perfect Crystals Analyzed by Takagi's Equations II.
Working Papers from Stavanger College No. 31 (1997), 184 pp..

3. Larsen, H.B., Thorkildsen, G. & Semmingsen, D.
Three-beam Diffraction in Imperfect Crystals
Working Papers from Stavanger College No. 40 (1998), 48 pp..

4. Thorkildsen, G. & Larsen, H.B.
Two-Beam Diffraction in Perfect Crystals Analyzed by Takagi's Equations III.
Working Papers from Stavanger College No. 42 (1998), 135 pp..

5. Larsen, H.B.
Calculation of Near Field Radar Cross Sections by Numerical Methods – a Feasibility Study
FFI Rapport. 98/04041 (1998), 73 pp.. Unntatt offentligheten. (Confidential.)

6. Larsen, H.B. & Søderblom, M.
Forstudie av nytt RCS analyseverktøy
FFI Rapport. 98/040xx (1998). Unntatt offentligheten. (Confidential.)

7. Thorkildsen, G.; Mathiesen, R.H. & Larsen, H.B.
Angle Calculations for a Six Circle κ-Diffractometer.
Working Papers from Stavanger University College No. 46 (1998), 86 pp..

8. Thorkildsen, G. & Larsen, H.B.
Two-Beam Diffraction in Perfect Crystals Analyzed by Takagi's Equations IV.
Working Papers from Stavanger University College No. 53 (1999), 170 pp..

9. Thorkildsen, G. & Larsen, H.B.
Two-Beam Diffraction in Perfect Crystals Analyzed by Takagi's Equations V.
Working Papers from Stavanger University College No. 78 (1999), 198 pp..

10. Bae, M. & Larsen, H.B.
Evidence of strain induced boundary migration in a super-austenitic stainless steel.
Working Papers from Stavanger University College No. 93 (2001), 19 pp..

11. Thorkildsen, G. & Larsen, H.B.
Angle calculations for a six circle κ-diffractometer II. General orientation of axes.
Working Papers from Stavanger University College No. 110 (2002), 150 pp..

12. Thorkildsen, G., Larsen, H.B. & Beukes, J.A.

Angle calculations for a six circle κ-diffractometer III. ψ-rotations and scan procedures.
Working Papers from Stavanger University College No. 131 (2004), 143 pp..

13. THORKILDSEN, G., LARSEN, H.B. & BEUKES, J.A.
Angle calculations for a six circle κ-diffractometer IV. Orientation matrix.
Papers from University of Stavanger No. 2 (2005), 150 pp..

14. THORKILDSEN, G. & LARSEN, H.B.
Crystallography of embedded precipitates in an *fcc* matrix.
Papers from University of Stavanger No. 24 (2007), 303 pp..

Other printed work; teaching material etc. (mostly in Norwegian)

1. LARSEN, H.B.
Dislokasjonsteori
Kompendium, HSR (1994), 108 pp..

2. LARSEN, H.B.
The Weissenberg camera – its geometry and use
Kompendium, HSR (1994), 21 pp..

3. THORKILDSEN, G., LARSEN, H.B. & URSIN, J.R.
Fysikk-laboratorium
Kompendium, HiS/UiS (1999 - 2005), 142 pp..

4. LARSEN, H.B.
Noen grunnleggende emner i fysikalsk materiallære
Kompendium, HiS (1999), 100 pp..

5. THORKILDSEN, G. & LARSEN, H.B.
TE-6254 Materialfysikk
Kompendium, HiS (2002), 165 pp..

6. THORKILDSEN, G. & LARSEN, H.B.
TE-6254 Materialfysikk – regneøvinger og løsningsforslag
Kompendium, HiS (2002), 65 + 112 pp..

7. THORKILDSEN, G. & LARSEN, H.B.
BIT100 Fysikk. (2007) Regneøvinger og løsningsforslag 89 + 159 pp.

Invited lectures and talks

1. LARSEN, H.B. & THORKILDSEN, G.
"Dynamical Diffraction in Small, Finite Crystals"
Seminar – Condensed Matter Physics, ESRF, Grenoble (6/3-97).

2. LARSEN, H.B.
"Synkrotronstråle-basert forskning ved ESRF"
Thursday-seminar in Natural Science – Stavanger University College (20/4-97).

3. LARSEN, H.B.
"Magnetic Diffraction of X-rays"
Trial-lecture for the degree dr.ing. Stavanger University College (20/7-97).

4. LARSEN, H.B. & THORKILDSEN, G
"New Challenges in Theoretical X-ray Diffraction"
Invited lecture for the yearly meeting at the Norwegian Physical Society, University of Oslo (10/6-98).

5. LARSEN, H.B.
"Numerical Approaches for estimating Near Field Radar Cross Sections"
Invited lecture at the Norwegian Defense Research Establishment. Department of Materials. (15/7-98).

6. LARSEN, H.B.
"Synchrotron Radiation – Applications in Materials Science"
Invited lecture at Department of Mechanical Engineering, University of Aalborg, Denmark. (31/5-00).

7. LARSEN, H.B. & THORKILDSEN, G.
"Measurements of dynamical diffraction effects in finite crystals"
Invited lecture for the first SNBL user's meeting – Research Highlights, Grenoble, France. (8/6-00).

8. LARSEN, H.B.
"Diffraksjon av Röntgenstråler fra materialer"

Innslag i "Verdt å vite" NRK P2 (31.01.02).
Popularization – radio broadcast.

9. Larsen, H.B.
"Kappa six-circle diffractometer – benchmarking"
Invited lecture to the "in-house" seminar-series at SNBL, Grenoble, France. (10.5.04).

10. Larsen, H.B.
"Three beam diffraction in imperfect crystals"
Invited lecture at HASYLAB, Hamburg, Germany. (23.6.04).

11. Larsen, H.B.
"Multiple beam diffraction – the basics, applications and possible developments"
Invited lecture at the technical university in Lausanne (EPFL), Department of Physics, Lausanne, Switzerland. (06.12.04).

12. Larsen, H.B.
"Single crystal X-ray diffraction and (FL)EXAFS: complementary opportunities"
Invited lecture at the Swiss Light Source (SLS); Paul Scherrer Institut; Villigen, Switzerland. (06.06.12).

13. Larsen, H.B.
"Synkrotroner og synkrotronstråling - nødvendige storskala-verktøy for å studere stoffers oppbygning på atomært nivå"
Invitert foredrag til møte i Norske Tekniske Vitenskapsakademi (NTVA), Stavanger (25.10.12)
Invited lecture at the meeting of the Norwegian Academy of Technology and Science, Stavanger (25.10.12).

14. Larsen, H.B.
"SAXS/SAXRD studies on Novel Cationic Lipid-DNA Complexes"
Invited lecture at "Symposium of Nonviral Delivery of Biotherapeutics", Weill-Cornell Medical College, Doha, Qatar (26.11.13)

15. Larsen, H.B.
"Hva skjer inni en synkrotron?"
Fredagsseminar UiS/IMN (18.10.13)
Friday-seminar at UiS/IMN.

16. Larsen, H.B.
"Moderne solcellematerialer"
Åpen fagdag UiS (15.11.16).

17. Larsen, H.B.
"Between dynamical and kinematical X-ray diffraction"
Invited seminar, Roskilde University (22.11.16) Roskilde, Denmark.

18. Larsen, H.B.
Foredrag UiB.

Awards

- *Scanas Forskningspris 1998*
(Scana's Research Award, 1998) (Shared with Gunnar Thorkildsen.)