

NIINA JALARVO

Education

- 2001-2005 PhD in Physics, Technische Universität Berlin, Germany.
Thesis title: *Quasielastic neutron scattering study on the dynamical properties of an aromatic hydrogen bond*
Thesis advisors: Ruediger Lechner and Ferenc Mezei
- 1996-2001 MSc, University of Helsinki, Finland
Major: physics; minors: mathematics, and pedagogy.
Thesis advisor: Heimo Saarikko

Work Experience

- 2016-present Instrument scientist, Neutron Scattering Division, Oak Ridge National Laboratory (ORNL), Oak Ridge TN, USA (on maternity leave: June -September 2018).
- 2010-2016 Instrument scientist, Jülich Centre for Neutron Science (JCNS) - Outstation at the Spallation Neutron Source (SNS), Oak Ridge National Laboratory (ORNL), Oak Ridge TN, USA.
- 2007-2010 Postdoctoral fellow (advisor: Truls Norby), Functional Energy Related Materials, Group of Electrochemistry, University of Oslo, Norway. (on maternity leave: Aug 2009 - June 2010).
- 2005-2006 Postdoctoral fellow (advisors: Dimitri Argyriou, and Margarita Russina), Hahn-Meitner-Institute, Berlin, Germany.
- 2001-2005 PhD student (advisors: Ruediger Lechner, and Ferenc Mezei), Hahn-Meitner-Institute, Berlin, Germany.

Student Training

- 2007-10 Camilla Kongshaug (Ph.D. student, Uni. of Oslo, Dept. of Chemistry), worked on Hydrogen in Oxides –project. Currently working as Senior Materials Engineer at TechnipFMC, Oslo, Norway.
- 2007-10 Skjalg Erdal (Ph.D. student, Uni. of Oslo, Dept. of Chemistry), worked on Hydrogen in Oxides –project. Currently working as Technical Director at A60N, Perth, Australia.
- 2017-2019 Jan-Patrick Melchior (postdoc, ORNL) worked on a project for dynamics in anion exchange membranes. Currently working at Audi battery research group, Stuttgart, Germany.
- 2017-2020 Eric Novak (Ph.D. student, UT Knoxville and Schull Wollan Centre), working on hydrogen bonding and dynamics in energy related materials. Graduation May 2020.

Teaching Qualifications and Experience

Formally qualified and trained to teach at Finnish universities and schools.

- 2010-pres. Continuously training and supervising the users of neutron backscattering spectrometer BASIS at the SNS user facility at the ORNL, Oak Ridge TN, USA.
- 2011-2022 National School on Neutron and X-ray Scattering, 20 hours each year
Topics: neutron backscattering technique, experiment and data analysis, SNS, ORNL, Oak Ridge, Tennessee, U.S.
- 2019-2022 National School on Neutron and X-ray Scattering, lecture
Topics: Quasielastic Neutron Scattering
- 2013 An Integrative Graduate Education and Research Traineeship Workshop in neutron scattering, 8 hours.
Topics: neutron backscattering technique and experiments, SNS, ORNL, Oak Ridge, Tennessee, U.S.
- 2010 Neutron Scattering Methods for Materials Research School, IFE, Lillestrøm, Norway.
Inelastic and quasielastic neutron scattering - lecture
- 2008 1st Nordic School and Symposium on Functional Energy Related Materials Gol, Norway.
Neutron scattering techniques – lecture
- 2007 Science teacher for 5 months / 20 hours weekly, Kulosaaren Yhteiskoulu International IB School, Helsinki, Finland.
- 2005-2006 *Girl's day* - science program design and teaching, Hahn-Meitner-Institute, 4 hours each year.
- 2000 Science teacher for 4 months / 20 hours weekly, Nurmijärven Yhteiskoulu (high school), Nurmijärvi, Finland.
- 1996-1999 Substitute teacher of science and math several weeks each year, Lauttasaaren Yhteiskoulu (middle and high school), Helsinki, Finland.

Research Management Experience

- 2007-2010 Project management and co-supervision of the PhD students of the FRINAT project 171157/V30 “Hydrogen in oxides (HYDROX)” of the Research Council of Norway.

Grants and Awards

- 2009-2010 Grant extension for the FRINAT project 171157/V30 “Hydrogen in oxides (HYDROX)” of the Research Council of Norway.
- 2006 Travel award, International Workshop on Dynamics in Confinement, Grenoble, France.
- 2006 Travel award, International Conference on Quasi-Elastic Neutron Scattering, Bloomington, U.S.
- 2005 Student travel award, CONTENT Workshop, Grenoble, France.
- 2003 Student travel award, European Conference on Neutron Scattering, Montpellier, France.

- 2000 Erasmus grant of supplementary funding for traineeship at Robert Bosch GmbH, Research and Development, Stuttgart, Germany.
- 1998 Undergraduate student grant, Ministry of Trade and Industry, Finland.

Full list of publications

- 1) Maus O., Agne M.T., Fuchs T., Till P.S., Wankmiller B., Gerdes J.M., Sharma R., Heere M., Jalarvo N., Yaffe O., Hansen M.R., Zeier W.G., "On the Discrepancy between Local and Average Structure in the Fast Na⁺ Ionic Conductor Na_{2.9}Sb_{0.9}WO₃1S₄", *Journal of the American Chemical Society*, 145, 7147-7158 (2023).
- 2) Beck C., Pounot K., Mosca I., Jalarvo N., Roosen-Runge F., Schreiber F., Seydel T., "Notes on Fitting and Analysis Frameworks for QENS Spectra of (Soft) Colloid Suspensions", *EPJ Web of Conferences*, 272, 01004 (2022).
- 3) Scheie A., Benton O., Taillefumier M., Jaubert L., Sala G., Jalarvo N., Koohpayeh S.M., Shannon N., "Dynamical Scaling as a Signature of Multiple Phase Competition in Yb₂Ti₂O₇", *Physical Review Letters*, 129, 217202 (2022).
- 4) Kumar S., Gupta M.K., Mittal R., Jalarvo N., Mukhopadhyay S., Shukla R., Achary S.N., Kolesnikov A.I., Tyagi A.K., Chaplot S.L., "Li-Ion Diffusion Correlations in LiAlGeO₄: Quasielastic Neutron Scattering and Ab Initio Simulation", *ACS Applied Energy Materials*, 5, 14119-14126 (2022).
- 5) Koegel A.A., Mozur E.M., Oswald I.W., Jalarvo N., Prisk T.R., Tyagi M., Neilson J.R., "Correlating Broadband Photoluminescence with Structural Dynamics in Layered Hybrid Halide Perovskites", *Journal of the American Chemical Society*, 144, 3, 1313–1322 (2022).
- 6) Novak E., Daemen L.L., Ramirez-Cuesta A.J., Cheng Y.Q., Smith R.W., Egami T., Jalarvo N., "Uncovering the hydride ion diffusion pathway in barium hydride via neutron spectroscopy", *Scientific Reports*, 12, 6794 (2022).
- 7) Beck C., Grimaldo M., Braun M.K., Buehl L., Matsarskaia O., Jalarvo N., Zhang F., Roosen-Runge F., Schreiber F., Seydel T., "Temperature and Salt controlled Tuning of Protein Clusters", *Soft Matter*, 17, 8506-8516 (2021).
- 8) Novak E., Daemen L.L., Page K., Neufeind J., Everett S.M., Egami T., Jalarvo N., "Temperature Dependent Local Atomic Structure and Vibrational Dynamics of Barium Hydride and Calcium Hydride", *Journal of Physical Chemistry C*, 125, 24328-24339 (2021).
- 9) Gupta M.K., Mittal R., Kumar S., Singh B., Jalarvo N., Delaire O., Shukla R., Achary S.N., Kolesnikov A.I., Tyagi A.K., Chaplot S.L., "Stoichiometric tuning of lattice flexibility and Na diffusion in NaAlSiO₄: quasielastic neutron scattering experiment and ab initio molecular dynamics simulations", *Journal of Materials Chemistry A*, 9, 16129-16136 (2021).
- 10) Q. Chen, N. Jalarvo, W. Lai, "Na ion Dynamics in P2-Na_x[Ni_{1/3}Ti_{2/3}]O₂: A Combination of Quasi-Elastic Neutron Scattering and First-Principles Molecular Dynamics Study", *Journal of Materials Chemistry A* 8 (47), 25290-25297
- 11) Johnston A., Walters G., Saidaminov M.I., Huang Z., Bertens K., Jalarvo N., Sargent E.H., "Bromine incorporation and suppressed cation rotation in mixed-halide perovskites", *ACS Nano*, 14, 11, 15107–15118 (2020).
- 12) E Novak, B Haberl, L Daemen, J Molaison, T Egami, N Jalarvo, "Pressure-induced phase transition in barium hydride studied with neutron scattering", *Applied Physics Letters* 117 (5), 051902 (2020)

- 13) C. Österberg, L. Mazzei, E. Jedvik Granhed, G. Wahnström, R. Nedumkandathil, U. Häussermann, A. Jaworski, A. Pell, S. Parker, N. Jalarvo, L. Börjesson, M. Karlsson, "The role of oxygen vacancies on the vibrational motions of hydride ions in the oxyhydride of barium titanate", *Journal of Materials Chemistry A* 8 (13), 6360-6371 (2020)
- 14) Q. Zhang, C. Zhang, Z. Hood, M. Chi, C. Liang, N. Jalarvo, M. Yu, H. Wang, "Abnormally Low Activation Energy in Cubic Na_3SbS_4 Superionic Conductor", *Chemistry of Materials* 32 (6), 2264-2271 (2020)
- 15) N.C. Osti, B. Haberl, N. Jalarvo, R. Boehler, J. J. Molaison, R.J. Goyette Jr., E. Mamontov, "Dynamics of a Room Temperature Ionic Liquid Under Applied Pressure", *Chemical Physics* 530, 110628 (2020)
- 16) M. Sarter, D. Niether, B. König, W. Lohstroh, M. Zamponi, N. Jalarvo, S. Wiegand, A. M. Stadler, J. Fitter, "Relevance of conformational dynamics for streptavidin-biotin binding", *The Journal of Physical Chemistry B* (2020)
- 17) S. Gautam, T.T. Bao Le, G. Rother, N. Jalarvo, T. Liu, E. Mamontov, S. Dai, Z. Qiao, A. Striolo and D. Cole, "Effects of Water on the Stochastic Motions of Propane Confined in MCM-41-S Pores", *Physical Chemistry Chemical Physics* 21 (45), 25035-25046 (2019)
- 18) J. Melchior, W. Lohstroh, M. Zamponi, N. Jalarvo, "Multiscale Water Dynamics in Model Anion Exchange Membranes for Alkaline Membrane Fuel Cells", *Journal of Membrane Science* 586, Pages 240-247 (2019).
- 19) M. Coduri, S. Casolo, N. Jalarvo, M. Scavini. "Disorder in $\text{La}_{1-x}\text{Ba}_{1+x}\text{GaO}_{4-x/2}$ ionic conductor: resolving Pair Distribution Function from a first principles guess", *Journal of Applied Crystallography* 52 (4) (2019).
- 20) J. Melchior, N. Jalarvo, "A Quasielastic Neutron Scattering Study of Exchanging Localized- and Extended Water Diffusion in Model Anion Exchange Membranes", accepted for publication in *Journal of Physical Chemistry C* 123 (23), 14195-14206 (2019).
- 21) M.K. Rasmussen, J.E.M. Pereira, M.C. Berg, G.N. Iles, N.R. de Souza, N.H. Jalarvo, V.F. Botosso, O.A. Sant'Anna, M.C.A. Fantini, H.N. Bordallo, "Dynamics of encapsulated hepatitis B surface antigen", *The European Physical Journal Special Topics* 227, 2393-2399 (2019).
- 22) X. Liu, Y. Chen, Z.D. Hood, C. Ma, S. Yu, A. Sharafi, H. Wang, K. An, J. Sakamoto, D.J. Siegel, Y. Cheng, N.H. Jalarvo, M. Chi, "Elucidating the mobility of H^+ and Li^+ ions in $(\text{Li}_{6.25-x}\text{H}_x\text{Al}_{0.25})\text{La}_3\text{Zr}_2\text{O}_{12}$ via correlative neutron and electron spectroscopy", *Energy & Environmental Science* 12, 945-951 (2019).
- 23) C. Eklöf-Österberg, R. Nedumkandathil, U. Häussermann, A. Jaworski, A.J. Pell, M. Tyagi, N.H. Jalarvo, B. Frick, A. Faraone, M. Karlsson, "Dynamics of Hydride Ions in Metal Hydride-Reduced BaTiO_3 Samples Investigated with Quasielastic Neutron Scattering", *J. Phys. Chem. C*, 123, 2019-2030 (2019).
- 24) M. Chi, X. Liu, J. Hachtel, N. Jalarvo, Y.Q. Cheng, J. Sakamoto, "Elucidating Ion Transport in Lithium-Ion Conductors by Combining Vibrational Spectroscopy in STEM and Neutron Scattering", *Proceedings of Microscopy & Microanalysis 2018*, 1496, (2018).
- 25) B. Hopfenmuller, R. Zorn, O. Holderer, O. Ivanova, W. Lehnert, W. Luke, G. Ehlers, N. Jalarvo, G.J. Schneider, M. Monkenbusch, D. Richter, "Fractal diffusion in high temperature polymer electrolyte fuel cell membranes", *J. Chem. Phys.*, 148, 204906 (2018).
- 26) E. Novak, N. Jalarvo, S. Gupta, K. Hong, S. Forster, T. Egami, M. Ohl, "Dynamics in the Plastic Crystalline Phases of Cyclohexanol and Cyclooctanol Studied by Quasielastic Neutron Scattering", *J. Phys. Chem. B*, 122, 6296-6304 (2018).

- 27) A. Pramanick, N.C. Osti, N. Jalarvo, S.T. Misture, S.O. Diallo, E. Mamontov, Y. Luo, J.K. Keum, K.C. Littrell, "Origin of dielectric relaxor behavior in PVDF-based copolymer and terpolymer films", *AIP Advances*, 8, 045204 (2018).
- 28) M.J. Klenk, S.E. Boeberitz, J. Dai, N. Jalarvo, V.K. Peterson, W. Lai, "Lithium self-diffusion in a model lithium garnet oxide Li₅La₃Ta₂O₁₂: A combined quasi-elastic neutron scattering and molecular dynamics study", *Solid State Ionics*, 312, 1-7 (2017).
- 29) C. Mark, O. Holderer, J. Allgaier, W. Pyckhout-Hintzen, M. Zamponi, A. Radulescu, A. Feoktystov, M. Monkenbusch, N. Jalarvo, and D. Richter, "*Polymer Chain Conformation and Dynamical Confinement in a Model One-Component Nanocomposite*", *Phys. Rev. Lett.*, 119, 047801 (2017).
- 30) E.M. Mozur, A.E. Maughan, Y.Q. Cheng, A. Huq, N. Jalarvo, L.L. Daemen, J.R. Neilson, "Orientational Glass Formation in Substituted Hybrid Perovskites", *Chem. Mater.*, 29, 10168–10177 (2017).
- 31) A. Pramanick, S.T. Misture, N.C. Osti, N. Jalarvo, S.O. Diallo, E. Mamontov, "Ferroelectric to paraelectric phase transition mechanism in poled PVDF-TrFE copolymer films", *Physical Review B*, 96, 174103 (2017).
- 32) T. Chatterji, F. Demmel, N. Jalarvo, A. Podlesnyak, C.M.N. Kumar, Y. Xiao, T. Brückel, "*Quasielastic and low-energy inelastic neutron scattering study of HoCrO₃ by high resolution time-of-flight neutron spectroscopy*", *Journal of Physics: Condensed Matter*, 29, 475802 (2017).
- 33) Y. Cheng, J. Balachandran, Z. Bi, C. A. Bridges, M. P. Paranthaman, L. L. Daemen, P. Ganesh, N. Jalarvo, "*The influence of the local structure on proton transport in a solid oxide proton conductor La_{0.8}Ba_{1.2}GaO_{3.9}*", *J. Mater. Chem. A*, 5, 15507–15511 (2017).
- 34) M. Krutyeva, S. Pasini, M. Monkenbusch, J. Allgaier, J. Maiz, C. Mijangos, B. Hartmann-Azanza, M. Steinhardt, N. Jalarvo, and D. Richter: "*Polymer dynamics under cylindrical confinement featuring a locally repulsive surface: a quasielastic neutron scattering study.*" *J. Chem. Phys.* 146, 203306 (2017)
- 35) S. Gupta, J.K.H. Fischer, P. Lunkenheimer, A. Loidl, E. Novak, N. Jalarvo, M. Ohl "*Effect of adding nanometre-sized heterogeneities on the structural dynamics and the excess wing of a molecular glass former*", *Scientific reports* (2016)
- 36) S. Gupta, E. Mamontov, N. Jalarvo, L. Stingaciu, M. Ohl, "*Characteristic length scales of the secondary relaxations in glass-forming glycerol*", *European Physical Journal E*, 39, 3, 40 (2016).
- 37) C.M.N. Kumar, Y. Xiao, H. Nair, J. Voigt, B. Schmitz, T. Chatterji, N. Jalarvo, T. Brueckel, "*Hyperfine and crystal field interactions in multiferroic HoCrO₃*", *J. Phys: Cond. Matt.*, 28, 476001 (2016).
- 38) S. Perticaroli, G. Ehlers, N. Jalarvo, J. Katsaras and J. D. Nickels, "*Elasticity and Inverse Temperature Transition in Elastin*", *J. Phys. Chem. Lett.* 6, 4018-4025 (2015).
- 39) N. Jalarvo, A. Pramanick, C. Do and S.O. Diallo, "*Effects of configurational changes on mesoscopic molecular dynamics in PVDF and P(VDF-TrFE) ferroelectric polymers*", *Applied Physics Letters* 107, 082907 (2015).
- 40) Z. Zhang, M. Ohl, S.O. Diallo, N. Jalarvo, W.-R. Chen, K.-H., Y. Han, C. Do, "*Dynamics of Water Associated with Lithium Ions Distribution in Poly (Ethylene Oxide): Atomistic Molecular Dynamic Simulation and Neutron Scattering Study*", *Phys. Rev. Lett.* 115, 198301 (2015).
- 41) M. Grimaldo, F. Roosen-Runge, M. Hennig, F. Zanini, F. Zhang, M. Zamponi, N. Jalarvo, F. Schreiber, and T. Seydel, "*Salt-induced universal slowing down of the short-time self-diffusion of globular protein in aqueous solution*", *J. Phys. Chem. Lett.* 6, 2577-2582 (2015).

- 42) S. Gautam, T. Liu, G. Rother, N. Jalarvo, E. Mamontov, S. Welch and D.R. Cole, “Dynamics of Propane Adsorbed in Nanoporous Silica Aerogel: A QENS Study”, J. Phys. Chem. C, 119, 150714-154733009 (2015).
- 43) A. al-Wahish, D. Armitage, B. Hill, U.al-Binni, R. Mills, N. Jalarvo, D. Mandrus, and K.W. Herwig, “Sample Cell Systems for Quasi-Elastic Neutron Scattering instrument Design at BASIS SNS” The Review of scientific instruments 86(9):4929580 (2015).
- 44) M. Grimaldo, F. Roosen-Runge, M. Hennig, F. Zanini, F. Zhang, N. Jalarvo, M. Zamponi, F. Schreiber and T. Seydel, “Hierarchical molecular dynamics of bovine serum albumin in concentrated aqueous solution below and above thermal denaturation”, Phys. Chem. Chem. Phys., 17, 4645 (2015).
- 45) S. Gupta, N. Arend, P. Lunkenheimer, A. Loidl, L. Stingaciu, N. Jalarvo, E. Mamontov, and M. Ohl, “Excess-wing relaxation in glassforming glycerol and glycerol:LiCl detected by neutron scattering”, The European Physical Journal E, 38, 1, (2015).
- 46) N. Jalarvo, M. Tyagi and M.K. Crawford, “Quasielastic Neutron Scattering Study of POSS Ligand Dynamics”, EPJ Web of Conferences, 83, 02005, (2015).
- 47) M. Grimaldo, F. Roosen-Runge, N. Jalarvo, M. Zamponi, F. Zanini, M. Hennig, F. Zhang, F. Schreiber, and T. Seydel, “High-resolution neutron spectroscopy on protein solution samples”, EPJ Web of Conferences, 83, 02007, (2015).
- 48) A. al-Wahish, N. Jalarvo, Z. Bi, K.W. Herwig, C. A. Bridges, M. P. Paranthaman and D. Mandrus, “Fast Proton Diffusion in Ca-doped LaPO₄ studied by Quasi-Elastic Neutron Scattering”, J. Phys. Chem. C 118 (35), pp 20112–20121 (2014).
- 49) B.J. Heuser, D.R. Trinkle, N. Jalarvo, J. Serio, E.J. Schiavone, E. Mamontov, and M. Tyagi, “Direct Measurement of Hydrogen Dislocation Pipe Diffusion in Deformed Polycrystalline Pd Using Quasielastic Neutron Scattering”, Physical Review Letters 113, 025504 (2014).
- 50) N. Jalarvo, O. Gourdon, G. Ehlers, M. Tyagi, S.K. Kumar, K. D. Dobbs, R.J. Smalley, W.E. Guise, A.J. Ramirez-Cuesta, C. Wildgruber and M.K. Crawford, “Structure and Dynamics of Octamethyl-POSS Nanoparticles”, J. Phys. Chem. C, 118 (10), pp 5579–5592 (2014).
- 51) H. Nozaki, M. Harada, S. Ohta, I. Watanabe, Y. Miyake, Y. Ikedo, N. Jalarvo, E. Mamontov and J. Sugiyama, “Li diffusive behavior of garnet-type oxides studied by muon-spin relaxation and QENS”, Solid State Ionics, 262, pp. 585–588 (2014).
- 52) S. Gautam, T. Liu, G. Rother, N. Jalarvo, E. Mamontov, S. Welch and D. Cole, “Effect Of Temperature And Pressure On The Dynamics of Nanoconfined Propane”, AIP Conference Proceedings 1591, 1353 (2014).
- 53) H. Nozaki, M. Harada, S. Ohta, N. Jalarvo, E. Mamontov, I. Watanabe, Y. Miyake, Y. Ikedo and J. Sugiyama, “Diffusive behavior of Li ions in garnet Li_{5+x}La₃Zr_xNb_{2-x}O₁₂ (x = 0-2)”, Journal of the Physical Society of Japan, 82, SA04 (2013).
- 54) N. Jalarvo, L. Stingaciu, D. Gout, Z. Bi, M.P. Paranthaman and M. Ohl, “Proton Dynamics in La_{0.8}Ba_{1.2}GaO_{3.9}nH₂O Studied by Quasielastic Incoherent Neutron Scattering”, Solid State Ionics, 252, 12-18 (2013).
- 55) N. Jalarvo, O. Gourdon, Z. Bi, D. Gout, M. Ohl and M.P. Paranthaman, “Atomic Scale Picture of the Ion Conduction Mechanism in Tetrahedral Network of Lanthanum Barium Gallate”, Chem. Mater. 25, 2741 (2013).
- 56) T. Chatterji, N. Jalarvo, C.M.N. Kumar, Y. Xiao and T. Brückel, “Direct observation of low energy nuclear spin excitations in HoCrO₃ by high resolution neutron spectroscopy”, J. Phys. Cond. Mat. 25, 286003 (2013).
- 57) N. Jalarvo, S. Casolo, N. Aliouane, D. Wallacher, O.-M. Løvvik and T. Norby, “On the Complex Structural Picture of the Ionic Conductor Sr₆Ta₂O₁₁”, J. Phys. Chem. C 117, 9543 (2013).

- 58) T. Chatterji, N. Jalarvo, A. Szytula, "Low energy nuclear spin excitations in HoAl₂ investigated by high resolution neutron spectroscopy", Solid State Comm. 161, 42 (2013).
- 59) T. Chatterji and N. Jalarvo, "Low energy nuclear spin excitations in Ho metal investigated by high resolution neutron spectroscopy", J. Phys. Cond. Mat. 25, 156002 (2013).
- 60) S. Erdal, C. Kongshaug, T. Bjørheim, N. Jalarvo, T. Norby, "Hydration of Rutile TiO₂: Thermodynamics and Effects on n- and p-Type Electronic Conduction", J. Phys. Chem. C 114, 9139 (2010).
- 61) N. Jalarvo, C. Haavik, C. Kongshaug, P. Norby, T. Norby, "Conductivity and water uptake of Sr₄(Sr₂Nb₂)O₁₁·xH₂O and Sr₄(Sr₂Ta₂)O₁₁·xH₂O", Solid State Ionics 180, 1151 (2009).
- 62) N. Jalarvo, H. N. Bordallo, N. Aliouane, M. A. Adams, J. Pieper, and D. N. Argyriou, "Water dynamics in superconducting Na_xCoO₂yH₂O (x~0.28, y~1.3)", J. Phys. Chem. B 112, 703 (2008).
- 63) N. Jalarvo, N. Aliouane, H. N. Bordallo, C. J. Milne, J. R. Veira and D. N. Argyriou, "Rotational motion of the water molecules in the sodium cobaltate superconductor Na_{0.28}CoO₂yH₂O", The European Physical Journal - Special Topics 141, 69 (2007).
- 64) N. Jalarvo, A. Desmedt, R. E. Lechner and F. Mezei, "The dynamical properties of the aromatic hydrogen bond in NH₄(C₆H₅)₄B from quasielastic neutron scattering", J. Chem. Phys., 125, 184513 (2006).
- 65) S. Leino and N. Jalarvo, *Koululaisiin, opettajiin ja kotitalouksiin kohdistuvan energiansäästöviestinnän kehitystarpeet*, Linkki 2, energiansäästön päätöksenteon ja käyttäytymisen tutkimusohjelma, Vol. 6 (1999), Publisher Työtehoseura, ISBN-9517882866.

Invited Talks

- 2019 Tutorial on modern modeling methods in neutron spectroscopy
Title: *Water Dynamics in Anion Exchange Membranes Studied by QENS*
- 2019 R2R Manufacturing Group Seminar, ORNL, Knoxville TN, USA.
Title: *What can we learn about materials using quasielastic neutron scattering?*
- 2017 253rd ACS National Meeting, San Francisco CA, USA.
Title: *Neutron scattering studies on atomic-scale proton diffusion processes in a solid oxide electrolytes*
- 2016 German Neutron Scattering Conference DN2016, Kiel, Germany.
Title: *Quasielastic neutron scattering studies on propane in nanoporous media*
- 2016 European Spallation Source, Lund Sweden.
Title: *Towards better understanding of atomic-scale ion migration processes in solid oxides*
- 2015 ORNL, Physical Sciences Directorate, Oak Ridge TN, USA.
Chemical and Materials Sciences Seminar
Title: *What we can learn about materials using quasielastic neutron scattering?*
- 2013 High Resolution Neutron Scattering to MEasure SLOW DYnamics (MELODY) Workshop, SNS, ORNL, Oak Ridge, TN, USA.
Title: *QENS studies of localized and long-range diffusion in solid oxide proton conductors*
- 2012 Backscattering Workshop, Jülich, Germany.
Title: *BASIS backscattering spectrometer: Sample environment and data-analysis*

- 2011 Trends and Perspectives in Neutron Instrumentation from Continuous to Spallation Sources Workshop, Tutzing, Germany.
Title: *BASIS backscattering spectrometer at SNS*
- 2010 Seminar, SNS, ORNL, Oak Ridge TN, USA.
Title: *Structure, hydration and proton dynamics in strontium tantalate, a potential fuel cell electrolyte*
- 2008 BENSOC Adsorption Workshop, Berlin, Germany.
Title: *Preliminary results of structural variations of $Sr_4(Sr_2Ta_2)O_{11+x}nD_2O$ under dry and humid D_2O atmosphere"*
- 2007 Seminar, IFE, Lillestrøm, Norway.
Title: *The complex perovskite oxyhydroxides*
- 2007 Centre for Materials Science and Nanotechnology Workshop, Wahdahl, Norway.
Title: *Hydrogen in Oxides*
- 2006 Seminar, NIST Center for Neutron Research, Gaithersburg, USA.
Title: *Quasielastic incoherent neutron scattering studies on $NH_4(C_6H_5)_4B$ and $Na_xCoO_2 \cdot yH_2O$ ($x \sim 0.28$, $y \sim 1.3$)*
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- Conference Contributions**
- 2014 Talk at the American Conference on Neutron Scattering, Knoxville, U.S.
Title: *Ion Migration Processes in Lanthanum Barium Gallate Studied by Neutron Scattering*
- 2014 Talk at the QENS & WINS conference, Autrans, France.
Title: *Ligand dynamics of POSS nanoparticles*
- 2013 Talk at the International Conference on Neutron Scattering, Edinburgh, U.K.
Title: *Ion migration processes in lanthanum barium gallate studied by neutron scattering*
- 2012 Talk at the Solid State Proton Conductors conference, Grenoble, France.
Title: *Atomic-scale picture of the proton conduction mechanism in the tetrahedral network of $La_{1-x}Ba_{1+x}GaO_{4-x/2}$*
- 2012 Talk at the International Workshop on Quantum Atomic and Molecular Tunneling in Solids and Other Condensed Phases, Santa Fe, U.S.
Title: *Rotational tunneling of ammonium involved in an aromatic hydrogen bond*
- 2011 Poster at the European Conference on Neutron Scattering, Prague, Czech Republic.
Title: *NPD and QENS Study of proton diffusion in $La_{1-x}Ba_{1+x}GaO_{4-d}$*
- 2010 Talk at the EMRS spring meeting, Strasbourg, France.
Title: *Hydrogen dynamics in a complex proton conducting perovskite strontium tantalate*
- 2009 Talk at the Norwegian Physical Society Meeting, Lillehammer, Norway.
Title: *Structure of strontium tantalate, a potential fuel cell electrolyte, from neutron powder diffraction and density functional theory calculations*
- 2009 Poster at the NANOMAT 2009 Conference, Lillehammer, Norway.
Title: *Hydrogen dynamics in a complex proton conducting perovskite, strontium tantalate*

- 2009 Talk at the Norwegian Physical Society Meeting, Lillehammer, Norway.
Title: *Structure of strontium tantalate, a potential fuel cell electrolyte, from neutron powder diffraction and density functional theory calculations*
- 2009 Poster at the NANOMAT 2009 Conference, Lillehammer, Norway.
Title: *Hydrogen dynamics in a complex proton conducting perovskite, strontium tantalate*
- 2008 Poster at the International Conference on Solid State Protonic Conductors, Kyoto, Japan.
Title: *Conductivity, water uptake and structural features of $Sr_4(Sr_2Nb_2)O_{11}$ and $Sr_4(Sr_2Ta_2)O_{11}$*
- 2007 Talk at the TPOHT II seminar, Oslo, Norway.
Title: *Proton conductivity of $LaNbO_4$ boosted by water vapor*
- 2006 Talk at the International Conference on Quasi-Elastic Neutron Scattering, Bloomington, U.S.
Title: *Water dynamics in superconducting $Na_xCoO_2 \cdot yH_2O$ ($x \sim 0.28$, $y \sim 1.3$)*
- 2006 Talk at the International Workshop on Dynamics in Confinement, Grenoble, France.
Title: *Water dynamics in superconducting $Na_xCoO_2 \cdot yH_2O$ ($x \sim 0.28$, $y \sim 1.3$)*
- 2005 Two posters at the CONTENT Workshop, Grenoble, France.
Titles: 1) *Dynamical properties of an aromatic hydrogen bond*
2) *Water dynamics in superconducting $Na_xCoO_2 \cdot yH_2O$ ($x \sim 0.28$, $y \sim 1.3$)*
- 2004 Poster at the International Conference on Quasielastic Neutron Scattering, Archachon, France
Title: *Aromatic hydrogen bond dynamics in ammonium tetraphenylborate*
- 2003 Poster at the European Conference on Neutron Scattering, Montpellier, France.
Title: *The dynamical properties of aromatic hydrogen bond*
- 2002 Poster at the International Conference on Quasielastic Neutron Scattering, Potsdam, Germany.
Title: *The dynamics of aromatic hydrogen bond in ammonium tetraphenylborate*
- 2002 Talk at the International Seminar on Neutron Scattering Investigation in Condensed Matter, Poznan, Poland.
Title: *The dynamical properties of $N-H \cdots \pi$ hydrogen bonds in ammonium tetraphenylborate*