



45th Scandinavian Symposium on Physical Acoustics

Online, 31 January and 1 February, 2022

Program of Monday, 31 January

08:45 Opening of the symposium

09:00 1st presentation session

- *Optimization of active ASW sonar parameters in realistic environments*
Karl Thomas Hjelmervik (FFI), Elin M. Bøhler (FFI)
- *Automated matching and pre-classification of sonar tracks on known navigational paths*
Dan Henrik Stender (FFI), Karl Thomas Hjelmervik (FFI)
- *Simulations of anti-submarine warfare operations in the littoral zone*
Kristoffer Engedal Andreassen (FFI), Henrik Berg (FFI), Karl Thomas Hjelmervik (FFI), Tom Erik Lindhjem (KNM)
- *Fronts of Langmuir circulation - 3D bubble cloud scanning with an HUGIN AUV*
Jørn Inge Vestgården (FFI), Karl Thomas Hjelmervik (FFI), Petter Østenstad (FFI)

10:20 Coffee and discussion break

10:50 2nd presentation session

- *Parabolic equation simulation of a sound beam propagating through a flowing fluid*
Daudel Tchatat (HVL), Kjell Eivind Frøysa (HVL)
- *Intensity of inhomogeneous waves in simple solids*
Erlend Magnus Viggren (NTNU), Håvard Kjellmo Arnestad (UiO)
- *Ultrasonic beam transmission through a water-immersed steel plate at the ZGV angle*
Mathias Sæther (UiB), Per Lunde (UiB), Magne Vestheim (UiB)
- *Wave equations for porous media described by the Biot model*
Sverre Holm (UiO), Sri Nivas Chandrasekaran (UiO), Sven Peter Näsholm (UiO)

12:10 Lunch break

13:00 Presentation session for new acoustics students

13:30 3rd presentation session

- *Range evaluation between indoor microphones obtained from acoustic ambient noise cross-correlations*
Joaquin Aparicio Sosa (UiO), Vincent Thio (UiO), Sverre Holm (UiO)
- *Sub-surface characterization using a very short recording of ocean ambient noise*
Hefeng Dong (NTNU), Guoli Wu (Natl. Univ. of Defense Tech., China)
- *Quick clay monitoring in Rissa, Norway, using distributed acoustic sensing*
Robin André Rørstadbotnen (NTNU), Martin Landrø (NTNU), Hefeng Dong (NTNU), Kenneth Duffaut (NTNU), Umedzhon Kakhkhorov (NTNU)

14:30 Coffee and discussion break



15:00 4th presentation session

- *Leaky Lamb wave and shear speed in arctic ice*
Nicholas Chotiros (Univ. of Texas at Austin, Natl. Oceanography Centre UK)
- *Energy-flux density in real-, imaginary-, and complex-valued branches of Lamb modes in an isotropic plate*
Marianne Solberg (UiB), Per Lunde (UiB), Magne Vestrheim (UiB)
- *A fast method for simulating Lamb wave propagation in coupled non-parallel plates*
Håvard Kjellmo Arnestad (UiO), Erlend Magnus Viggen (NTNU)
- *Guided waves and machine learning for corrosion monitoring in steel pipes*
Magnus Wangensteen (NTNU)

16:20 Program finished

Program of Tuesday, 1 February

08:30 Annual meeting of the Acoustics Group of the Norwegian Physical Society

09:00 5th presentation session

- *Adaptive beamforming and autocalibration for swath sonars*
Tor Inge Lønmo (KM), Andreas Austeng (UiO), Roy Edgar Hansen (FFI)
- *Potential of self-supervised learning for underwater acoustic source localization*
Xiaoyu Zhu (NTNU), Hefeng Dong (NTNU), Pierluigi Salvo Rossi (NTNU), and Martin Landrø (NTNU)
- *PhD project: Adaptive beamforming in underwater detection and estimation problems*
Gabor Gereb (UiO)
- *Data-driven approach for underwater acoustic communications*
Hao Zhao (NTNU)

10:20 Coffee and discussion break

10:50 6th presentation session

- *Single crystal in underwater transducers*
Ellen Sagaas Røed (KM, USN), Martin Bring (KM), Andreas Henriksen (KM), Frank Tichy (KM), Else-Marie Åsjord (KM), Lars Hoff (USN)
- *Fabrication and characterization of a low-frequency array for a hybrid PZT-CMUT transducer*
Josh Hoi Yi Siu (USN)
- *Radiation in air from a piezoelectric ceramic disk in radial mode. Contributions from front, sides and rear*
Eivind Nag Mosland (UiB), Jan Kocbach (NORCE), Espen Storheim (NERSC), Magne Vestrheim (UiB), Per Lunde (UiB)
- *Class E driven CMUT for wide band operation*
Mansoor Khan (COMSATS University Islamabad)



12:10 Lunch

13:00 7th presentation session

- *Deep learning models for fisheries acoustic target classification*
Nils Olav Handegard (IMR)
- *Acoustically induced nonlinear crosstalk in broadband echosounders*
Babak Khodabandelloo (IMR), Egil Ona (IMR), Gavin Macaulay (IMR), Rolf Korneliussen (IMR)
- *Finite-amplitude sound propagation effects in fish abundance estimation*
Audun Oppedal Pedersen (UiB), Per Lunde (UiB), Rolf Korneliussen (IMR), Frank Tichy (KM)
- *Application of backscattering models for target strength measurement of T. mediterraneus and S. colias in the Mediterranean Sea*
Antonio Palermino (IMR, CNR IRBIM), Geir Pedersen (IMR), Rolf Korneliussen (IMR), Andrea De Felice (CNR IRBIM), Iole Leonori (CNR IRBIM)

14:20 Coffee and discussion break

14:50 8th presentation session

- *Reduced order modelling of acoustics*
Jon Vegard Venås (SINTEF), Trond Kvamsdal (SINTEF), Trond Jenserud (FFI)
- *Estimation of velocity profile of fluid influx/efflux and crack geometry while drilling oil and gas boreholes using Doppler ultrasound*
Shivanandan Indimath (NTNU), Stefano Fiorentini (NTNU), Jørgen Avdal (NTNU), Hans Torp (NTNU), Tonni Franke Johansen (NTNU, SINTEF), Bjarne Rosvoll Bøklepp (Equinor), Svein-Erik Måsøy (NTNU)
- *Estimating the uncertainties for sound scattering measurements in an anechoic chamber*
Isabel Berg (UiB), U. Peter Svensson (NTNU)
- *Accuracy of instruments in acoustics*
Gunnar Taraldsen (NTNU)

16:10 Closing of the symposium

16:25 Program finished



Instructions for participants

- The symposium will be held using the [Zoom](#) platform. **Please make sure that you have the most recent version of Zoom installed before the symposium**, as some features are not available in older versions.
- To facilitate conversation in the breaks, we will open breakout rooms that you can move between freely. Thus, you can gather in smaller groups like you would at a physical symposium.
- You can use the Chat function to send public messages (e.g., questions to the presentation) or private messages to other participants (e.g., to suggest meeting for a discussion in the break).

Instructions for presenters

- The time between presentations is 20 minutes.
- Please limit your talk to 15 minutes, allowing some time for questions and change of presenter.
- We will ask you to hold your presentation via screen sharing. Please ensure that you can share your screen in Zoom before your presentation. We will also have a breakout room available where you can try this out.

Special instructions for student presenters

The student presentation session gives new students an opportunity to present themselves to the community, even without sufficient material for a full talk. The procedure is:

- You are given 3 minutes each to present yourself and your project
- Please prepare a presentation with one or two slides, containing:
 - Your name
 - The title of your project
 - The name(s) of your supervisor(s) and your institution and group
 - Short description of your project: Background, motivation, goals, etc.
 - Results, if you have any yet