End of year and holiday greetings from the Director Stephen Hall

This our final newsletter for 2020, a year that will forever be remembered for the coronavirus pandemic. We would like to take this opportunity to thank all in the LINXS community for your continued support, interest and engagement in LINXS, in spite of such a challenging year. Hopefully 2021 will be remembered for more positive things and we can take forward some positives from 2020, such as our new skills in on-line interactions and a clear appreciation of the value of physical meetings.

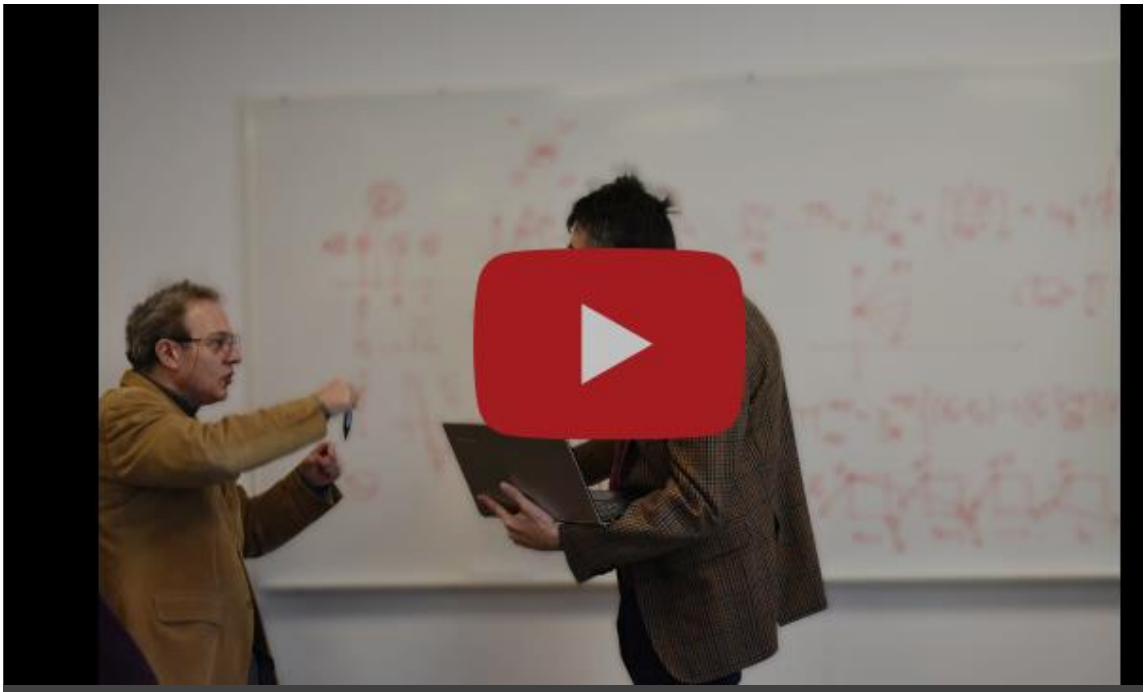
For LINXS, 2020 has been a year of significant developments in terms of how we do our work. Almost all of our events have moved online, a practice that we will continue in some contexts to engage with a wider audience across different time zones and countries. In the autumn we welcomed a new theme, “New Materials”, and published a new call towards the 5th LINXS theme. We have also launched an educational feature to our website and work on our wiki is well underway. Our two new webinar series, “Let’s Dive into the Atoms” and “CoWork”, have highlighted the interest in, on the one hand, introductory discussions for new users of x-ray and neutron techniques and, on the other hand, focused in-depth exploration of a cutting edge field. The “Let’s Dive into the Atoms” series has been much appreciated for its practical aspects behind neutron and x-ray science, including information on how to run experiments and apply for beam-time. This focus fills an important gap in terms of bringing in new users to our facilities. The “CoWork” series grew out of a cancelled physical event and has blossomed into a strong forum for the discussion of coherence-based inverse microscopy techniques.

Other significant activities in the summer/autumn have been “The Masterclass on Food” and the three-day “Time Resolved Structural Biology” workshop. We are also very excited to have held the kick-off for the antibodies research programme which you can read more about below.

We are now looking forward to 2021, which we hope will see the end of the pandemic and the start of more physical meetings and interactions here at LINXS. We hope that next year will be a fruitful year for research, discussion and activities to push forward neutron and x-ray science.

Happy holidays from all of us here at LINXS. We hope you can take this time to relax and see family and friends either in digital form or in real life.

See you in the new year!



Watch an interview with Stefano A. Mezzasalma about his experience of being a guest researcher at LINXS from January 2020 - April 2020 under the Theme Integrative Structural Biology.

LINXS Science Day

LINXS organised its 2020 Winter Science Day on 16thDecember. More than 70 people attended the online event, which aimed to highlight research and work taking place in the LINXS themes. All four LINXS themes were represented, with talks on coherent diffraction imaging, GISANS, reflections from the Time Resolved Integrative Structural Biology workshop and the new theme, “New Materials”.

Read an article about Science Day at LINXS.se

Working group on catalysis aims to deepen the understanding of chemical processes

A new working group at LINXS, under the theme New Materials, aims to gain a deeper understanding of catalysts at an atomic level, and help solve the mystery of how catalysts actually work.

– No one really knows all the intricate details of how catalysts work. To try to resolve that, we are studying the catalytic processes on an atomic scale, “live”, i.e. when the catalyst is active and working, to identify what is happening and why, says Sara Blomberg, assistant professor at the Department of Chemical Engineering at Lund University, and leader of the catalysis working group.

Read an article with Sara Blomberg at LINXS.se

The Antibodies in Solution research programme aims to plug a crucial research gap

The Antibodies in Solution research programme at LINXS aims to increase the fundamental understanding of antibodies, and in time create simulation models and experimental tools that can test and predict antibody behaviour in solutions up to high concentrations.

– Antibodies are very complex proteins. Using different techniques will therefore be key to understand their behavior on a fundamental level. We will use x-ray and neutron scattering techniques together with relevant complementary methods and advanced data analysis tools to get as broad a picture as possible, says Anna Stradner, Professor at the Division of Physical Chemistry at Lund University, who is leading the programme.

Read an article about the antibodies research programme at LINXS.se

Reflections on the Time Resolved Structural Biology workshop

LINXS asked Martin Weik, member of the Time Resolved Structural Biology working group, and researcher at the Institut de Biologie Structurale in Grenoble, France, to share his experiences of organising and attending the online workshop, Time Resolved Structural Biology – Seeing the Structure of Motions, in November.

– The workshop beautifully showcased the diversity of time-resolved methods and methodologies to study biological macromolecules *at work*: time-resolved X-ray scattering in solution and on crystals at synchrotrons and XFELs, time-resolved neutron spectroscopy, time-resolved single-particle cryo electron microscopy, NMR, electron diffraction and molecular dynamics stimulations.

Read an interview with Martin Weik about his experiences of the event at LINXS.se

SCIENTIFika - MAX IV scientific seminar series

MAX IV is organising a series of scientific seminars that will take place on Mondays at 13.45h CET. The Zoom talks will feature users discussing scientific results and possible future experiments at MAX IV beamlines. Future talks will be published on the MAX IV website when they are finalised.

Read more about the seminar series at maxiv.lu.se

Selected Lectures from the African School of Physics

ESS, being one of the partners in ASP, has helped LINXS to collect some selected lectures from the African School of Physics. These lectures are chosen because of their relevance to synchrotron and neutron methods. The lectures are listed in 11 categories for ease of reference.

Explore the lecture series at LINXS.se

LINXS events and related events

Here is a list of all the current events and activities taking place at LINXS, in partnership with LINXS or related to LINXS. Due to the currrent corona pandemic, many activities have had to be postponed. We will

inform you once we have new dates for our events and activities.

Events are open to all researchers from academia and industry.
LINXS Event - WEBINAR: CoWork series - Coherent X-ray imaging of 3D magnetic systems with Claire Donnelly, **12 January**
LINXS Related Event - Open Seminar: Machine Learning for X-ray Coherent Diffractive Imaging, **12 January**
LINXS Event - Amyloid Workshop: User-friendly analysis of spectroscopy data with Quasar - multivariate statistics and machine learning, **13 - 15 January**
LINXS Event - Amyloid Workshop - Heart and Mind: linking in vitro science to the clinical context, **5th March**
LINXS Event - Bridge the gap in amyloid Analysis, **22-23 March 2021**
LINXS Partner Event - Northern Lights on Food 2 **, 9-11 June 2021**
LINXS Related Event - SCIENTIFika, January 2020 - December 2021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