



## Words from the Director Trevor Forsyth

The year is drawing to a close, and I have now completed my first year as Director of LINXS. It has been an amazing period for me, with a significant culture shift from my previous working environments in France and the UK; the move has been greatly facilitated by the warm reception we have had in Sweden, both professionally within LINXS and the University, and personally.

I am immensely grateful for the great work of all our researchers, and excited about continuing the strategic development that we have set in motion during the year. I re-emphasise my gratitude to the previous LINXS Director, Stephen Hall, for the massive and very effective effort he put into LINXS throughout the very difficult pandemic period. I should also acknowledge Peter Schurtenberger, the original LINXS Director, for what he has done in bringing LINXS into existence and setting it up as an advanced study institute closely allied to the large facility investments that have been made in Sweden.



There has been a huge amount of activity at LINXS during 2022 as things have evolved (albeit in a quite frenetic way) into the post-pandemic version of normality. A new Theme

on *Integrated Pharmacology and Drug Discovery* (IPDD) has started, led by Karin Lindkvist, ushering in a remarkable array of activity covering structure based drug design, biomedical imaging in relation to drug delivery, and antibody therapeutics. The involvement of Mikael Dolsten (Chief Scientific Officer at Pfizer) in the Core Group of this Theme is highly significant. The *New Materials* Theme, led by Elizabeth Blackburn, has continued to develop throughout the year with an innovative set of workshops and other events. The *Northern Lights on Food* (NLF) Theme, instigated by Selma Maric and Tommy Nylander, continues to flourish and has generated a remarkable base of activity, including funding from FORMAS, Vinnova, Maja och Erik Lindqvist Forskningsstiftelse, EU/Skåne, all modelled around a strong long-term vision to create a food science centre in the Science Village. Congratulations to Selma for her recent appointment to a position in Vetenskapsrådet; her efforts for NLF are very much appreciated!

There have been many educational events, as well as all the Theme-driven workshops and conferences, and numerous short and long term visitors. During the year, there have been two excellent Science Days involving broad national and international participation, with registrations that were the highest ever recorded at LINXS, as well as a virtual Town Hall meeting that has allowed the discussion of LINXS Theme activities (and interactions between them) with the easy inclusion of international collaborators. Throughout the year, LINXS has hosted several guest lectures – most recently Paul Langan (Director General at the Institut Laue-Langevin in Grenoble), and Robert McGreevy (previous Director of ISIS at the Rutherford Appleton Laboratory in UK); both events have resulted in potential initiatives for the future. Other sections of the Newsletter provide detail on these and other events that have occurred during the year.

The year has also been an extremely important one in terms of LINXS strategic development. One aspect of this is that proposals to support scientific Themes can now come from *anywhere* in the country or indeed anywhere in the world. The first international Theme call closed in November and the applications are currently under review with the aid of the LINXS international Science Advisory Board (SAB). This will result in considerable growth for LINXS Thematic activity and other scientific engagement. The year has also been an extremely important one in terms of the LINXS arrangements to move into the Science Village during the next 18/24 months - a move that will place us right in the middle of a brand new national and international science environment that will benefit from physical proximity to both the MAX IV and ESS facilities. The LINXS Board is evaluating attractive bids that were made by different companies at its latest meeting – these will be discussed in detail during 2023. In addition, LINXS has, in collaboration with

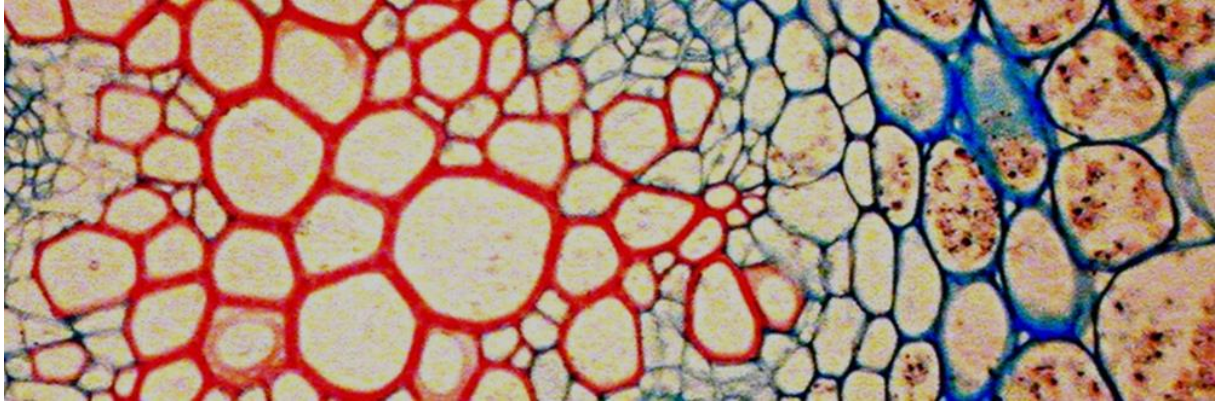
MAX IV and ESS, applied to the Swedish Research Council for the creation of a LINXS *Centre of Excellence*. A successful outcome to this proposal will provide funding to resource LINXS Themes led by scientists/groups from anywhere in the country (Sweden), extending its mission to develop interdisciplinary science over the country and maximising the exploitation of synchrotron and neutron beam facilities by the Swedish science base.

There are many people to thank for the successes of the year. Our Board, of course, as our stakeholders, who help us steer our way in line with the mission and statutes of LINXS. We also thank our external international Science Advisory Board (SAB) who provides us with impartial advice as we make choices about our activities and about prioritization of Theme applications. Here we express heartfelt gratitude to Stefan Egelhaaf as the Chair, who has recently taken leave from the SAB for personal reasons. Stefan is an extremely constructive and collegiate Chair of the SAB and we have valued his help and advice immensely. We are very grateful to Christiane Alba-Simionesco who has stepped in as interim Chair, at very short notice. We also offer warm welcomes to Annette Langkilde and Alexandra Pacureanu, as our newest additions to the SAB. Alexandra is leader of the X-ray nano-neuroimaging group at ESRF, the European Synchrotron in Grenoble, France, and Annette Langkilde is Associate Professor at the Department of Drug Design, University of Copenhagen, Denmark. Their expertise and knowledge will be a great addition to the SAB's work, particularly in the area of life science.

I should also thank key LINXS people from management and staff: Marie Skepö, Oxana Klementieva, Jörgen Larsson, Anna Ntinidou, Martin Stankovski, Nina Ahlbeck, Noomi Egan, and Marianne Loo. A big thank you to Åsa Grunning who stepped down during 2022. We are immensely grateful for all her amazing work throughout the existence of LINXS. Last week, we had our first Christmas Open House and glögg-mingle. It was a lovely start of the holiday season to see so many of you that have been involved in LINXS over the years.

I want to close by wishing you all a lovely holiday from me, and from all of the LINXS staff and management. I hope you can spend it with your near and dear ones, and take some time to relax and recuperate. See you in the new year!

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## The NLF Industry Workshop on Food Colloids highlighted common challenges

Around 40 people attended in October the hybrid Industry Workshop on Food Colloids and Structured Interfaces co-organised by Ben Boyd, Professor at the Department of Pharmacy, University of Copenhagen, Associate Professor Jacob Kirkensgaard from Department of Food Science, University of Copenhagen, and Dr Ulf Andersen from Arla Foods.

– The whole intention of the event was to get companies to talk with each other, and discuss what they are doing and how they are using scattering approaches to solve problems. This is an important aspect since many companies face similar issues. It is also a way of inspiring each other, and increase knowledge on how, and when, to use scattering techniques to gain knowledge about food structures, says Ben Boyd.

[Read an interview with Ben Boyd about the workshop](#)





# The Antibodies in Solution research programme is right on track!

The Antibodies in Solution research programme had a successful mid-term meeting in September. The aim was to discuss the experimental and simulation results that the individual consortium members had collected so far on the NIST antibody (NISTmAb) since the middle of 2021 and tackle important scientific questions.

– I am happy to say that we are completely on track with our research as outlined in the LINXS mAb Research Road Map. People are very excited because everyone sees the value and the advantage of working with the same antibody, under the same, agreed upon conditions. Now we will be able to make a series of experiments and generate a reference data set that can then be used to improve simulation models. I am completely convinced that this is the way to really make progress in this research area, says Anna Stradner, Professor in Physical Chemistry at Lund University, and research programme leader.

[Read an interview with Anna Stradner about the meeting](#)



## Well received IPDD workshop on Biomedical Imaging

Up to now synchrotron techniques have rarely been used in the latter stages of biomedical drug development and drug discovery processes. A novel educational workshop, organised by the Biomedical Imaging working group, as part of LINXS' theme IPDD, gathered 40 participants in mid-October, with another 23 people attending online.

[Read an interview with working group leader Lars E Olsson about the workshop](#)

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### Langan on LINXS

Paul Langan, Director General of the ILL, Institut Laue Langevin, gave a guest lecture at LINXS in late November. He has unique, world-leading experience of managing large scale neutron facilities, and as previous Associate Director at Oak Ridge National laboratory, he was responsible for leading the operation and development of the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor (HFIR) user facilities.

During his visit, he reflected on the future role of LINXS in relation to building bridges between the ILL and the ESS neutron communities.

[Read an interview with Paul Langan about his reflections](#)

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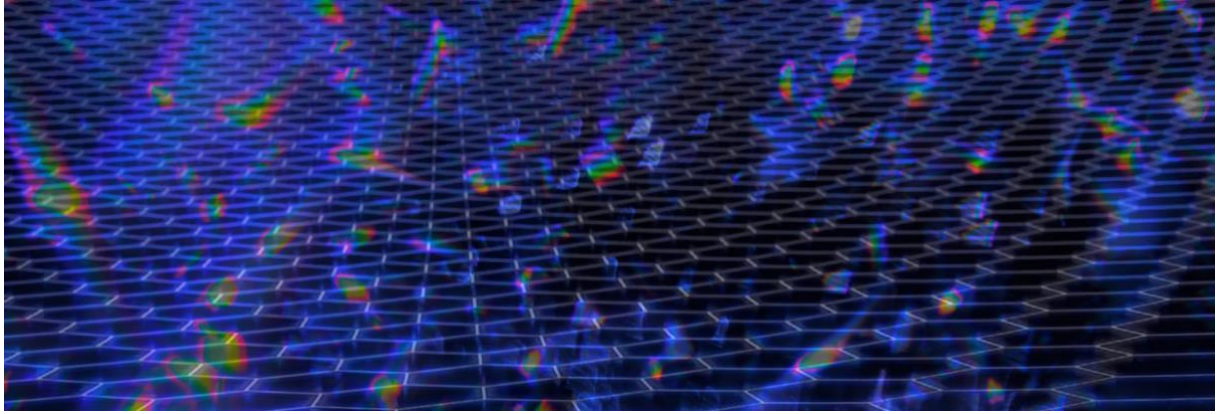
## McGreevy on LINXS

Robert McGreevy, based at the Rutherford Appleton Laboratory in the UK, gave a guest lecture at LINXS in early December. He is a world-leading researcher in the area of neutron scattering and computer modelling, and has a special interest in the development and integration of data analysis and data management tools with experiments.

He can see many ways in which LINXS can support the use, and further development, of neutron and X-ray based research.

[Read an interview with Robert McGreevy about his reflections](#)

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## The New Materials Catalysis working group has established many new collaborations

The Catalysis working group has been in existence for two years. Sara Blomberg, Associate Senior lecturer at the Department of Chemical Engineering at Lund University, and working group leader, is happy with how the work is progressing: – We have established new collaborations but also stimulated already ongoing joint projects.

She is very pleased with the overall progress of the group's work. Inviting visiting guest researcher Jason Weaver, Professor in Chemical Engineering, from Florida University in the USA, has been very fruitful. He stayed at LINXS from May unto July 2022. She says that having someone stay for a longer period, which is the aim of LINXS visiting guest researcher programme, is important in terms of enabling more focused discussions – which in this case led on to formal collaborations in the form of beamtime proposals.

[Read an interview with Sara Blomberg about the work in the Catalysis working group](#)

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## Kim Nygård: LINXS can help disseminate the possibilities afforded by ForMAX

In November, the ForMAX beamline at MAX IV officially opened for user experiments. The beamline is especially designed for advanced studies on wood-based materials, but can also be used for research on food, textiles and within life sciences. Beamline manager Kim Nygård, previous LINXS fellow under the Dynamics theme, can see many ways in which LINXS can support dissemination of the new possibilities afforded by ForMAX.

– At LINXS, many different researchers work in themes to progress science related to X-rays and neutrons. It is a good setting to highlight how ForMAX can support new science, especially related to food and life sciences. It can also be a place for discussion of how the X-ray experiments at ForMAX can be complemented with simulations and other techniques and tools, he says.

[Read and interview with Kim Nygård about LINXS and ForMAX](#)

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## LINXS welcomes two new SAB members

LINXS is glad to welcome two new members to the LINXS international Scientific Advisory Board, both representing the area of life sciences: Alexandra Pacureanu, leader of the X-ray nano-neuroimaging group at ESRF, the European Synchrotron, and Annette Langkilde, Associate Professor at the Department of Drug Design, University of Copenhagen. Their expertise and knowledge will be a great addition to the SAB's work.

[READ ABOUT THE NEW SAB MEMBERS](#)

## Calendar

Our upcoming scientific activities within our Themes and Working Groups, and related events.

12

Jan

CoWork series

- Studying protein dynamics by scattering, with Frank Schreiber

[Register](#)

17-  
18

Jan

LINXS outreach event: Nordic Workshop on Scattering from Soft Matter 2023, NSSM2023

[Register](#)

26

Jan

CoWork series:

- Patrick Ferrand, from Fresnel Institute -CNRS, Marseille

Save the date

1

Feb

Antibodies in Solution: a LINXS – NIST Webinar Series

- Structural Bioinformatics, with Sergej Grudinin WP 4, CNRS, France

Save the date

9

Feb

CoWork series:

- Mathew J. Cherukara, Argonne National Laboratory, USA

Save the date

13

Feb

LINXS guest seminar:

- Recording visualizing and Interacting: Using Virtual Reality for Iterpreting the past with Nicolo Dell'Unto

[Register](#)

23

Feb

CoWork series

- Aline Ribeiro Passos, The Brazilian Synchrotron Light Laboratory (LNLS)

Save the date

**1**

Mar

Antibodies in Solution: a LINXS – NIST Webinar Series

- NMR, with John Marino WP 3, Nist, USA

Save the date

**10**

Mar

LINXS partner event:

- Metals and Manufacturing Annual Workshop

Save the date

**15-**

**17**

Mar

LINXS partner event: MATRAC School

[More information and register](#)

**20-**

**24**

Mar

New Materials theme

- LINXS XAS-School 2023, Charge Transfer Materials working group

[Register](#)

**28**

Mar

LINXS guest seminar

- Kristina Djinovic Carugo, Head of EMBL Grenoble

Save the date

**5**

April

Antibodies in Solution: a LINXS – NIST Webinar Series

- Domain Motions, with Ralf Biehl WP 2 & 3, Jülich Centre for Neutron Science (JCNS), Germany

Save the date

**19**

April

Northern Lights on Food theme

- Workshop with the Food Interaction on Surfaces working group

Save the date

**28**

April

LINXS Science Day

Save the date

**3**

May

Antibodies in Solution: a LINXS – NIST Webinar Series

- All Atom MD, with Christina Bergonzo WP 4, Nist, USA

Save the date



**24**

May

Integrative Pharmacology and Drug Discovery  
theme meeting

Save the date

**7**

June

Antibodies in Solution: a LINXS – NIST Webinar  
Series

- Protein Interactions, with Mikael Lund WP 4, Lund  
University, Sweden

Save the date

**7-9**

June

Northern Lights on Food IV conference

Save the date

**12-**

**15**

June

LINXS outreach event: BSR14 - 14th International  
Conference on Biology and Synchrotron Radiation

[More information](#)

**23**

Aug

Related event: X-ray ptychography  
microsymposium at the IUCr 2023 Congress in  
Melbourne

[More information](#)

[MORE LINXS ACTIVITIES](#)

