

# Workshop Program – ARPES in Sweden

**Zoom Meeting ID:** 629 0339 9244 (<https://kth-se.zoom.us/j/62903399244>)

**Dates:** October 5 - October 6, 2021.

## October 5 (Tuesday):

### **Session 1: Introduction to ARPES, current status and experimental capabilities.**

*Chair: Magnus H. Berntsen*

09:00 – 09:10 Welcome and Introduction

09:10 – 09:30 *The Hitchhiker's Guide to ARPES* (Yasmine Sassa, Chalmers)

09:30 – 10:30 Examples of ARPES studies from Swedish users

*The role of ARPES for the determination of 2D structures*  
(Roger Uhrberg, LiU)

*Time-resolved ARPES with free electron lasers and table-top x-ray sources*  
(Hermann Dürr, UU)

*Quasi-1D Antiferromagnet  $\text{NaV}_2\text{O}_4$  studied by Muons, Neutrons & X-rays*  
(Martin Månsson, KTH)

10:30 – 11:30 Beamlines and instruments for ARPES at MAXIV

*The Bloch ARPES beamline at MAX-IV* (Craig Polley)

*The MAXPEEM beamline at MAX-IV* (Alexei Zakharov)

*The FinestBeams beamline at MAX-IV* (Weimin Wang)

*The FlexPES beamline at MAX-IV* (Alexei Preobrajenski )

*Soft X-ray ARPES at MAX-IV* (Hanna Fedderwitz)

11:30 – 12:00 Questions & Discussions

12:00 – 13:00 Lunch break

### **Session 2: Current instrumental and technological developments and future directions.**

*Chair: Antonija Grubisic-Cabo*

13:00 – 14:00 Future ARPES capabilities

*Using nanoARPES to access electronic properties of nano-engineered 2D materials*  
(Søren Ulstrup, AU)

*Accessing the spectral function in a current-carrying device*  
(Philip Hofmann, AU)

*Photoemission spectroscopy using momentum microscope*  
(Maciej Dendzik, KTH)

14:00 – 15:00 Examples of state-of-the-art ARPES studies

*Charge Density Waves and Band Structure in NbS<sub>3</sub> Polymorphs measured through nanoARPES*  
(Dibya Puyal, KTH/Cambridge)

*New strategies for probing local orbital and topological properties using ARPES*  
(Samuel Beaulieu, U. Bordeaux)

*Ultrafast electronic line width broadening in the C 1s core level of graphene*  
(Davide Curcio, AU)

### **Session 3: Meet the Swedish ARPES community.**

*Chair: Ute Cappel*

15:10 – 16:00 Virtual poster session or 5 minute presentations

## **October 6 (Wednesday)**

### **Session 4: Identifying future science cases for ARPES studies and collaborations.**

*Chair: Ute Cappel*

09:00 – 09:40 From theory to experiments

*Skyrmion creation, manipulation, and ARPES possibilities*  
(Claudio Verdozzi, LU)

*Organic Quantum Matter*  
(Matthias Geilhufe, Nordita)

09:40 – 10:40 Devices and applications

*Towards devices with heteroepitaxial 2D crystals*  
(Samuel Lara-Avila, Chalmers)

*Spin in Topological Quantum Materials and Devices*  
(Saroj Dash, Chalmers)

*2-dimensional perovskites: Phase transitions and applicability to solar cells*  
(James Gardner, KTH)

10:40 – 11:40 Sample growth and new materials

*Emergence of exotic electronic and magnetic correlations in Chromium tri-iodide: a Van der Waals ferromagnetic insulator* (Anirudha Ghosh, UU)

*What is the origin of the "strange metal" phase break down in underdoped cuprates?*  
(Floriana Lombardi, Chalmers)

*Next generation atomic scale controlled nanostructures for photonics and electronics*  
(Anders Mikkelsen, LU)

11:40 – 12:00 Questions and Discussions

12:00 – 13:00 Lunch break

### **Session 5: Panel discussions – Developing a vital Swedish ARPES community.**

*Chair: Antonija Grubisic-Cabo*

13:00 – 13:45 Interest from the community; science cases, instrumentation

*Panelists:* Balasubramanian Thiagarajan (MAX-IV), Jonas Weissenrieder (KTH/FASM), Anders Mikkelsen (LU), Lars Kloo (KTH), Saroj Dash (Chalmers), Mats Göthelid (KTH)

*Facilitator:* Oscar Tjernberg (KTH)

13:45 – 14:30 How to strengthen the Swedish ARPES community?

*Panelists:* Ute Cappel (KTH), Mahmoud Abdel-Hafiez (UU), Yasmine Sassa (Chalmers), Balasubramanian Thiagarajan (MAX-IV), Bo Hellsing (GU), Jonas Weissenrieder (KTH/FASM)

*Facilitator:* Lars Kloo (KTH)

14:30 – 14:45 Concluding remarks

## **Contact**

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