

# Fysikdagarna 2022



**LUND**  
UNIVERSITY

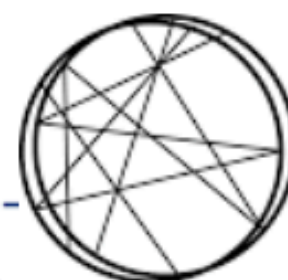


**LUNDS**  
KOMMUN



THE ROYAL SWEDISH ACADEMY OF SCIENCES

**KUNGL.  
VETENSKAPS-  
AKADEMIEN**



**LUND INSTITUTE OF ADVANCED  
NEUTRON AND X-RAY SCIENCE**

**LINXS**

# Welcome to Fysikdagarna!

Three days filled with physics!  
 Parallel sessions organised by the specific sections today and on Friday  
 Tomorrow: Plenary sessions with theme *Swedish accelerator-based science*

Wed 15/06

09:00	Particle days: Welcome and Introduction	09:00 - 09:15
	ATLAS experiment: Overview of activities at KTH	Christian Ott
	Search for a supersymmetric long-lived particle at the ATLAS experiment	Karl Filip Backman 09:30 - 09:45
	Search for Higgs-like scalar particles in the $8bb$ $\gamma\gamma$ final state with the ATLAS experiment.	Stefo Youssef Andrian 09:45 - 10:00
10:00	Break	10:00 - 10:30
	Effective Field Theory interpretations of Higgs boson pair production searches in ATLAS	Christina Dambach 10:30 - 10:45
	Status and Prospects of Light Dark Matter experiment	Ruth Puttgén 10:45 - 11:00
11:00	The SMARTEP International Training Network	Caterina Doglioni 11:00 - 11:15
	Differentiable Programming for High-Energy Physics	Mr Nathan Daniel Simpson 11:15 - 11:30
	IPPOG/outreach	Jonas Strandberg et al. 11:30 - 11:45
	High-School/outreach	Kristian Sævi 11:45 - 12:00

12:30 - 13:00	Isospin-symmetry breaking in n... Nadzda Smim...	Registrering och kaffe	Parallel session: The default times are 13:00-17:00
13:00 - 13:15	Recent results from the R3B experiment Dr Andrea Jedele	Introduktion ESS	Phase Transition and Gravitatio... Dr Zhi Wei Wang
13:00 - 13:30	Bayesian inference and predict... Isak Svensson	Föreläsning "Experiment med neutroner vid ESS"	The electroweak phase transi... Rikard Enberg
13:15 - 14:00	Posterior predictive distributi... Sean Miller	Föreläsning "Skåpkläderna vid ESS"	New methods for studying the ... Andreas Ekstedt
14:10 - 14:30	Mirror Symmetry and Proton Emission in the Upper fp Shell Yulia Hrabar	Säkerhetsinformation inför rundtur	Fingerprints of freeze-in dark m... Dr Avik Banerjee
14:30 - 14:45	Stories from inside a magnet: solenoidal spectrometers Anna Kawicka	Kaffe	Phase transitions: A source of ... Eliot Combarro
14:30 - 14:50	The potential of multi-strange physics with PANDA at FAIR Michael Papenbrock	Fika	CDR R W-mass anomaly faces f... Roman Pasech
14:50 - 15:15	Femto-science: Electromagnetic transition form factors of the nucleon Di An	Ta på skyddskläder (grupp 2)	A fermionic portal to a non-abelian dark sector Luca Patrizi
15:00 - 15:30	The Structure of Something Strange Victor Thoen	Workshop (grupp 1) Rundtur på ESS (grupp 2)	Speeding up SM Amplitude Calculations with Chirality Flow Andrea Lison
15:15 - 15:30	Exploring the HADES Fab22 pp Run Jana Dieger	Ta på alternativt av skyddskläder	On the interplay of fluorescenc... Megha Gopalk...
16:20 - 16:40	Physics Opportunities from the Sp... Lambda-Lambda Reaction Channel at HADES Malin Bohman	Rundtur på ESS (grupp 1) Workshop (grupp 2)	Break
16:45 - 17:45	Gymnasialeröv med buffé på Fysicum	Ta på alternativt av skyddskläder	Fika
17:00 - 19:00	Plenary session: Poster session, AF Borgen Athen	Ta på alternativt av skyddskläder	Coffee break
17:00 - 17:15	News from ACCU (slides only), P... Pedro Cortez	Ta på alternativt av skyddskläder	Teaching with open research data: experiences from five years of exploration-driven lab exercises in subatomic physics for undergraduate students Christine Ott
17:15 - 17:30	General Dark Matter Electron Interactions in Detector Materials Einar Lindhals	Ta på alternativt av skyddskläder	Linking Programming to Representations Kim Svensson
17:30 - 17:45	RECFACERN Arnaud Ferrari et al.	Ta på alternativt av skyddskläder	Quantum computing in rare-earth-ion-doped crystals Adam Kropf
17:45 - 17:00	IUPAP Roman Pasech et al.	Ta på alternativt av skyddskläder	Ultrafast nanophotonics: from ... Dr Niccolò Mecc...
18:30 - 20:00		Ta på alternativt av skyddskläder	Atomic astrophysics for Galacti... Madeline Bur...
19:00 - 19:15		Ta på alternativt av skyddskläder	Understanding Dynamic Calcul... Alex Andersson
19:15 - 19:30		Ta på alternativt av skyddskläder	Shooting X-rays at the nitrogen molecule like it's 2022 Ludvig Kjellson
19:30 - 19:45		Ta på alternativt av skyddskläder	Exploring crystallisation in "no man's land" Margare Lidell
19:45 - 20:00		Ta på alternativt av skyddskläder	Relativistic laser-electron accel... Attila De Andre...
20:00 - 20:15		Ta på alternativt av skyddskläder	A Levitating Droplet as a Toy At... Javier Tello MA...
20:15 - 20:30		Ta på alternativt av skyddskläder	Re-recombination in Fe-based ... Linnea Linch
20:30 - 20:45		Ta på alternativt av skyddskläder	Multiconfigurational effects in a... Michael Coates
20:45 - 21:00		Ta på alternativt av skyddskläder	A Green's function method for L... Chen Zhou

Thu 16/06

09:00	Welcome, AF Borgen, Stora salen (5)	09:30 - 09:35
	LINKS Intro (10)	Elizabeth Blackburn
	MAX IV (20+10)	Stephan Malby
09:00	ESS (20+10)	Andreas Schreyer
10:00	Fika	10:05 - 10:30
	LINKS 1 (20+10)	Martin Bich
	LINKS 2 (20+10)	Sara Blomberg
	Antihydrogen and the ALPHA and GBAR experiments (20+10)	Dawid Jasek
12:00	Lunch (included)	12:00 - 12:45
	Welcome to Lund (Mayor of the City of Lund)	Hans Holmér
	FAIR and strong interaction matter in the universe (20+10)	Andri Schenck
	Investigative Science Learning Environment (ISLE): When learning physics mirrors doing physics (10+10)	Eugene Etkin
	Fika	13:35 - 14:30
	CERN, LHC and the Higgs (20+10)	Sara Strandberg
	Challenges for women's careers in physics (10+10)	Majed Elmi-Jou et al.
18:00	Conference dinner (included), AF Borgen Stora salen, After dinner: Troels Petersen: The modelling of Covid-19	18:30 - 22:00

Fri 17/06

09:00	The ESSnUSB Experiment - Conceptual Design... Prof. Todd Einar	Föreläsning "Magnetar och miniskor - MR i forskning och medicin" (Fysicum K604) Karin Muckteroch Bloch	Parallel session: Parallel sessions	Workshop "Investigative Science Learning Environment and Student Learning of Energy" med Fika (Fysicum L421), fully booked! Eugene Etkin et al.
	Latest Results from the IceCube Neutrino Observ... Chad Foley			
	Probing X-ray bright blazars as sources of high... Ankur Sharma			
	Detection horizon of neutrinos from core-colla... Nora Velten-Mattila			
10:00	Break	Fika		
	New opportunities with IceCube-Gen2 Eiri O'Sullivan	Föreläsning "Joniserande strålning i medicinen tjänst för diagnostik och terapi" (Fysicum K604) Michael Ljungberg		Plenary session: SFS annual meeting, Fysicum, Sal A (L317)
	Pulsars do not produce sharp spectral feature... Isabelle John			
11:00	HBEAM at the ESS - status and plans Bernhard Meese			
	ALICE activities in Lund Alice Ohlson			
12:00				
13:00				
14:00				
15:00				

Wi-Fi (if not using eduroam):  
**AFBORGEN-WIFI**  
 Password: **Lund4%6!!**

# Today

Partikeldagarna parallel session

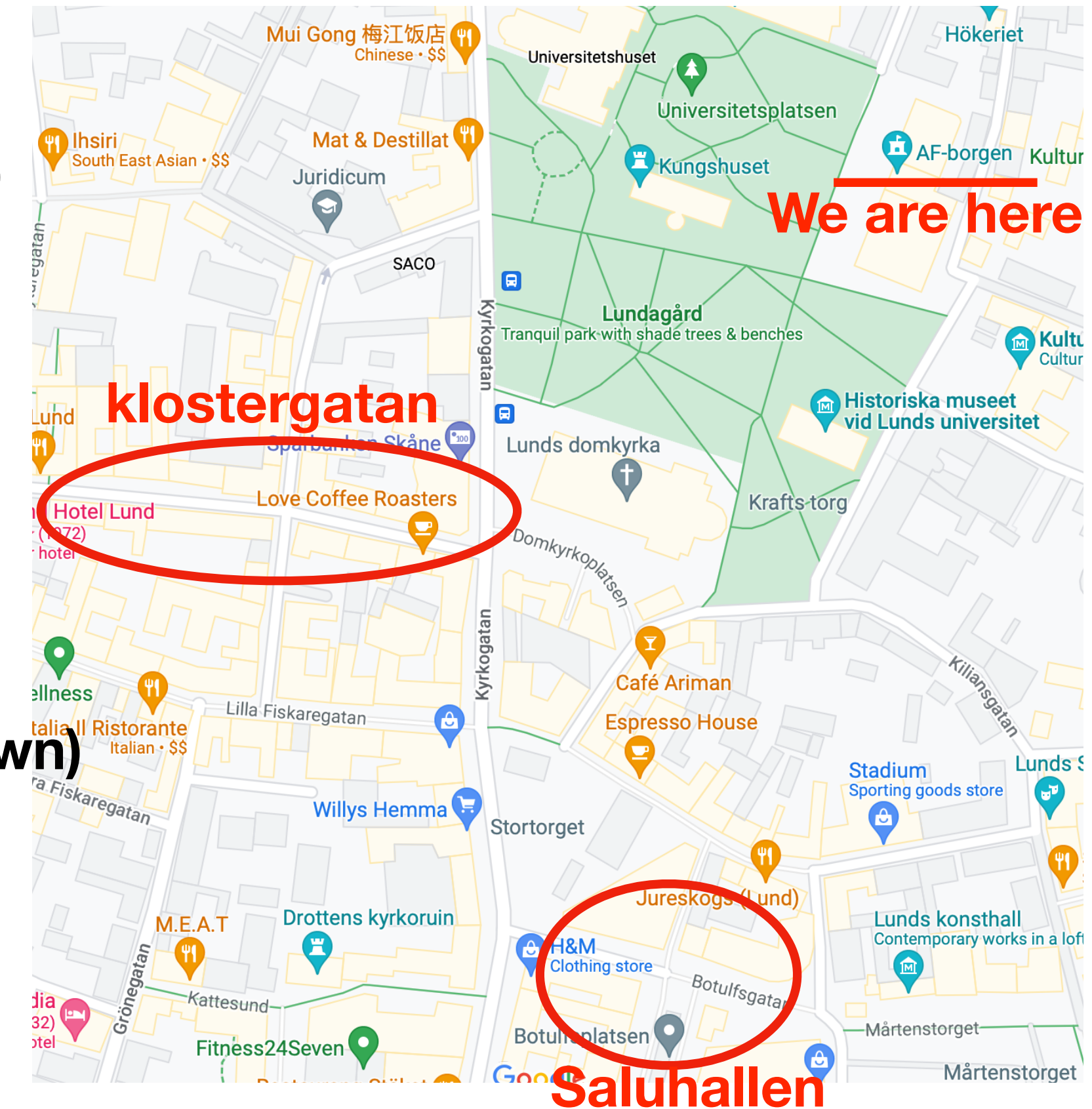
Full programme today!  
(Speakers, stick to your allocated times!)

Fika (included) at 10:00 and 15:00

Lunch 12:00 - 13:00  
(Not included – many places around town)

Plenary poster session 17:00 - 19:00  
(with two drinks and wraps included)  
Location: AF Borgen Athen  
Award for the best poster

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	ATLAS experiment: Overview of activities at KTH	Christian Ohm 09:15 - 09:30
	Search for a supersymmetric long-lived particle at the ATLAS experiment	Karl Filip Backman 09:30 - 09:45
	Search for Higgs-like scalar particles in the $S_{bb}$ $\gamma\gamma$ final state with the ATLAS experiment.	Stefio Yosse Andrean
10:00	Break	10:00 - 10:30
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	Status and Prospects of Light Dark Matter eXperiment	Ruth Pottgen 10:45 - 11:00
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	Differentiable Programming for High-Energy Physics	Mr Nathan Daniel Simpson 11:15 - 11:30
	IPPOG/outreach	Jonas Strandberg 11:30 - 11:45
	High-School/outreach	Kristian Strid 11:45 - 12:00
12:00		
13:00	Phase Transition and Gravitational Wave of Strongly Coupled Dark Sectors	Dr Zhi Wei Wang 13:00 - 13:15
	The electroweak phase transition and Effective Field Theory	Rikard Enberg 13:15 - 13:30
	New methods for studying the Electroweak phase transition	Andreas Ekstedt 13:30 - 13:45
	Fingerprints of freeze-in dark matter in an early matter-dominated era	Dr Avik Banerjee 13:45 - 14:00
14:00	Phase transitions: A source of cosmic-frontier phenomenology	Elieel Camargo-Molina 14:00 - 14:15
	CDF II $W$ -mass anomaly faces first-order electroweak phase transition	Roman Pasechnik 14:15 - 14:30
	A fermionic portal to a non-abelian dark sector	Luca Panizzi 14:30 - 14:45
	Speeding up SM Amplitude Calculations with Chirality Flow	Andrew Lifson 14:45 - 15:00
15:00	Break	15:00 - 15:30
	Status of the Light Dark Matter KAW project	Timon Emken 15:30 - 15:45
	The SHIFT project: status and prospects	Elin Bergeas Kuutmann 15:45 - 16:00
16:00	Searching for Vector Dark Matter at Beam Dump Experiments	Taylor Gray 16:00 - 16:15
	General Dark Matter Electron Interactions in Detector Materials	Einar Urdshals 16:15 - 16:30
	RECFA/CERN	David Anthony Milstead 16:30 - 16:45
	IUPAP	Roman Pasechnik et al. 16:45 - 17:00
17:00	News from ACCU (slides only, no presentation)	Rebeca Gonzalez Suarez
	Plenary session: Poster session, AF Borgen Athen	
18:00		



08:00	Welcome, AF Borgen, Stora salen (5)	08:30 - 08:35
	Elizabeth Blackburn: LINXS intro (10)	Elizabeth Blackburn 08:35 - 08:45
09:00	Stephen Molloy: MAX IV (30+10)	Stephen Molloy 08:45 - 09:25
	Andreas Schreyer: ESS (30+10)	09:25 - 10:05
10:00	Fika	10:05 - 10:30
	Martin Bech: LINXS 1 (20+10)	10:30 - 11:00
11:00	Sara Blomberg: LINXS 2 (20+10)	11:00 - 11:30
	Svante Jonsell: Antihydrogen and the ALPHA and GBAR experiments (20+10)	11:30 - 12:00
12:00	Lunch (included)	12:00 - 12:45
	Mats Helmfrid (Mayor of the City of Lund): Welcome to Lund	12:45 - 12:50
13:00	Achim Schwenk: FAIR and strong interaction matter in the universe (35+10)	Achim Schwenk 12:50 - 13:35
14:00	Eugenia Etkina: Investigative Science Learning Environment (ISLE): When learning physics mirrors doing physics (45+10)	13:35 - 14:30
	Fika	14:30 - 14:50
15:00	Sara Strandberg: CERN, LHC and the Higgs (35+10)	Sara Strandberg 14:50 - 15:35
16:00	Meytal Eran-Jona and Yosef Nir: Challenges for women's careers in physics (45+10)	15:35 - 16:30
17:00		
18:00		
19:00	Conference dinner (included), AF Borgen Stora salen. After dinner: Troels Petersen: The modelling of Covid-19	
20:00		
21:00		
22:00		18:30 - 22:00

# Tomorrow

**Plenary sessions of Fysikdagarna**  
**Theme: Swedish accelerator-based science**  
**Location: AF Borgen Stora salen**

**Start at 8:30**

**Fika (included) at 10:00 and 14:30**

**Lunch (included) between 12:00 and 12:45**

**Dinner (included)**  
**Location: AF Borgen Stora Salen**

**After dinner talk: Troels Petersen on "The modelling of Covid-19"**

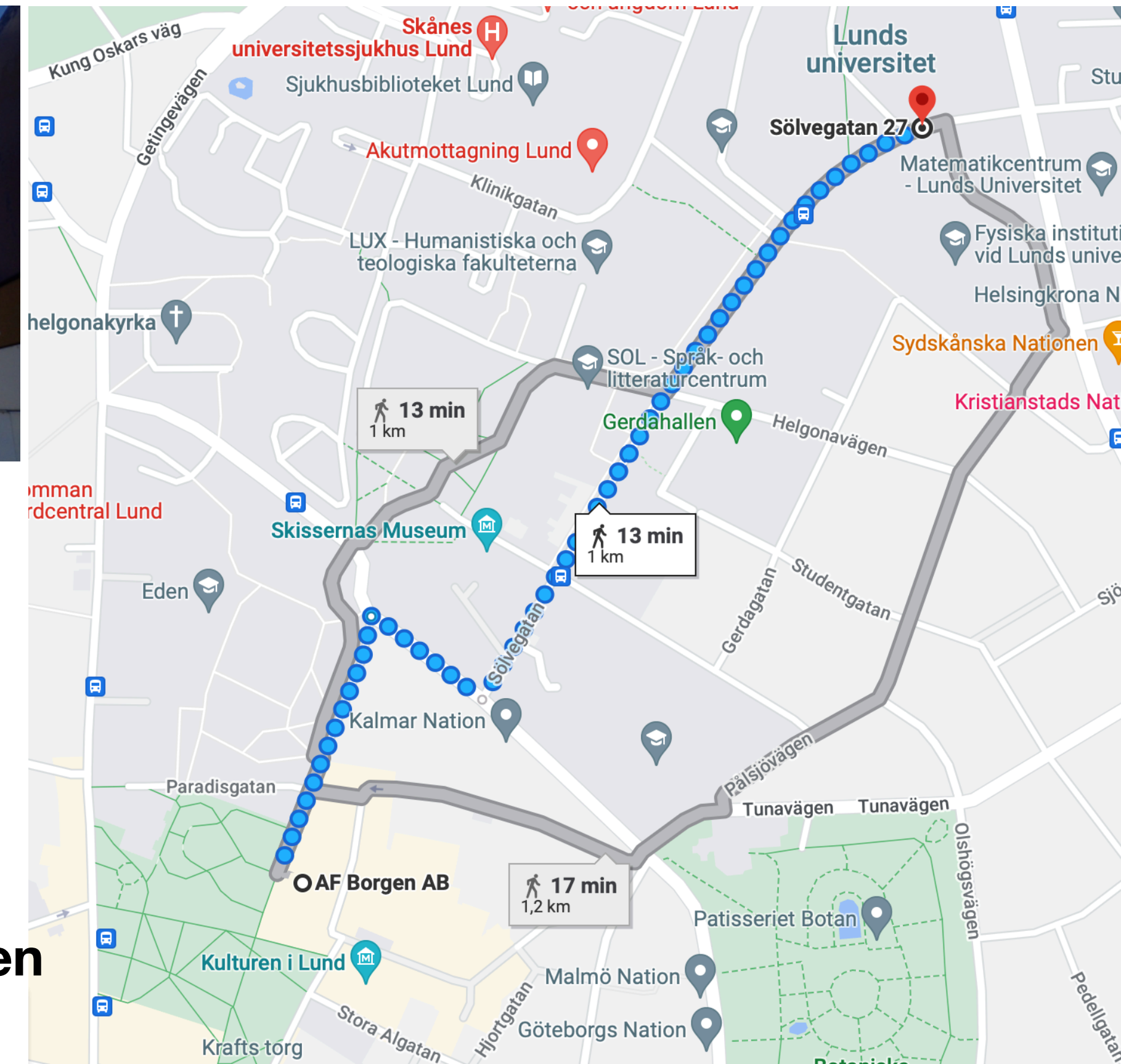
# Friday

## Partikeldagarna parallel session

**Location: Lundmarksalen, Astronomy building, Sölvegatan 27**

09:00	<b>The ESSnuSB Experiment - Conceptual Design and Physics Potential</b>	<i>Prof. Tord Ekelöf</i>	09:00 - 09:15
	<b>Latest Results from the IceCube Neutrino Observatory</b>	<i>Chad Finley</i>	09:15 - 09:30
	<b>Probing X-ray bright blazars as sources of high-energy astrophysical neutrinos with IceCube</b>	<i>Ankur Sharma</i>	09:30 - 09:45
	<b>Detection horizon of neutrinos from core-collapse supernovae using high energy neutrinos</b>	<i>Nora Valtonen-Mattila</i>	09:45 - 10:00
10:00	<b>Break</b>		10:00 - 10:30
	<b>New opportunities with IceCube-Gen2</b>	<i>Erin O'Sullivan</i>	10:30 - 10:45
	<b>Pulsars do not produce sharp spectral features in the cos...</b>	<i>Isabelle John</i>	
11:00	<b>HIBEAM at the ESS - status and plans</b>	<i>Bernhard Meirose</i>	11:00 - 11:15
	<b>ALICE activities in Lund</b>	<i>Alice Ohlson</i>	11:15 - 11:30
12:00			

**Plenary session: SFS annual meeting, Fysikum, Sal A (L317)**  
10:30 - 12:00



**Start at 9:00**

**Fika (included) at 10:00**

**At 11:30: move to Fysikum Sal A (just across the street) to join for the talk of the winner of the Oseenmedal (part of the open SFS meeting)**

**end: 12:00**

# Fysikdagarna 2022



# Enjoy the physics days!

