

RM@Schools: Reports on the realised Public Events

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Name of the author/Responsible partner: Royal Institute of Technology (KTH) and Geological Survey of Sweden (SGU) - Sweden

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28/09/2018 – STOCKHOLM (SWEDEN)



PARTNERS' NAME	ROYAL INSTITUTE OF TECHNOLOGY (KTH) AND GEOLOGICAL SURVEY OF SWEDEN (SGU)
ROLE:	PARTICIPANT
EVENT'S TITLE	FORSKARFREDAG (RESEARCHERS' FRIDAY)
DATE	SEPTEMBER, 28TH 2018
WHERE	STOCKHOLM, VETENSKAPENS HUS (SCIENCES' HOUSE)
DURATION	9AM TO 3PM
NUMBER OF PARTICIPANTS	CA. 2000

In 2018, the European Researchers' Night takes place on the 28 September, continuing on the following day. Activities will take place in at least 27 cities, organised by e.g. universities, science centres, museums, research centres, municipalities, science parks and regional development councils. The event is coordinated by the Swedish non-profit organisation Vetenskap & Allmänhet (Public & Science), VA.

Activities range from experiments and maker spaces to demonstrations, shows and exhibitions, as well as science cafés and talks in small groups. These innovative and exciting activities allow for public engagement and meetings with researchers in relaxed and festive environments. The events are aimed at showing that researchers are ordinary people with extraordinary jobs and that research is all about communication and international cooperation.

PICTURES



Figure 1: Kerstin Forsberg (KTH) and Theo Berthet (SGU) in front of their RM@Schools’ stand at the European researchers’ night in Stockholm, Sweden.



Figure 2: The stand of RM@Schools at the European researchers’ night in Stockholm: from rocks to critical raw materials.



Figure 3: Kerstin Forsberg (KTH) explaining the chemical techniques used to recover critical raw materials from mine waste in northern Sweden.



Figure 4: Theo Berthet (SGU) describing the diversity of geology in Europe and its influence on the critical raw materials deposits of Europe.



Figure 5: Kerstin Forsberg (KTH) describing the chemical protocol used to extract rare earth elements from apatite mine waste.



Figure 6: From rocks (apatite-iron ore from northern Sweden) to critical raw materials (rare earth elements).

LINK: [HTTPS://FORSKARFREDAG.SE/](https://forskarfredag.se/)

LEAFLET OF THE EVENT (ATTACHED IN THE FOLLOWING PAGES)

FORSKARFREDAG STOCKHOLM 2018



- When:** Friday 28 September 2018 at 9.00-15.00
Where: AlbaNova University Centre and House of Science in Stockholm
For whom: Pupils at Upper Secondary School and in Year 9. There is also an exhibition for schools and the general public.
Registration? www.forskarfredag.se/stockholm
Cost? Free admission!

All activities are in Swedish unless otherwise stated.

Programme for ForskarFredag Stockholm 2018

Welcome to our annual science festival that offers a wide range of exciting talks given by researchers, shows, dialogues and a great exhibition with lots of hands-on experiments. Throughout Friday there is an opportunity to meet researchers at AlbaNova University Centre, House of Science and SciLifeLab. For the first time, lots of exciting activities are also taking place on the Saturday too (see separate programme).

Take the opportunity to meet some of Stockholm's top researchers!

The 2018 ForskarFredag in Stockholm is organised by



Co-organisers: ADOPT, KRC, Röda Korsets Högskola, Sophiahemmet Högskola, Konstfack, Vasamuseet, Nobelmuseet, SciLifeLab, Sveriges unga akademi, Skolforskningsinstitutet, Intercult, Scania och AstraZeneca.

Funding partners:



ForskarFredag has been funded by the European Commission under HORIZON 2020 in the framework of the Marie Skłodowska Curie actions, GA No. 722934.

Popular science presentations in the Oskar Klein room (FR4), AlbaNova University Centre

Presentations are around 30 minutes long unless otherwise stated. Seating capacity 265. Pre-booking is necessary — booking code in brackets ()

11.00 How do you find an exploding star?

What do researchers actually do when they are searching through thousands of galaxies every night to find exploding stars? Robot telescopes, computer technology and quick reactions are what are needed in the supernova world!

Contributor: **Jesper Sollerman**, supernova researcher at the Department for Astronomy, Stockholm University
BOOKING CODE: **OK-11**



12.00 Mathematics to support democracy

When votes are counted in an election, they are used to decide which politicians get elected. But you have to agree which mathematical method to use. This talk will be look at how elections can be manipulated e.g. in the USA, using gerrymandering. Plus Sweden's biggest election scandal and the 'largest remainder' method used in Sweden today and its benefits.

Contributor: **Svante Linusson**, mathematics researcher at KTH
BOOKING CODE: **OK-12**

13:00 I have a deadly illness but I'm living an amazing life with it (45 mins)

A number of years ago, Peter Jihde found out that he had type 1 diabetes. He can no longer live the same way as before. But thanks to the discovery of insulin, diabetes can be treated, even though it is still a serious illness for almost half a million people in Sweden - and their relatives. What is it like to live with diabetes today, and what might diabetes research lead to in the future?

Contributors: **Peter and Karin Jihde**, authors of the book "Our diabetes" and **Viveca Gyberg**, doctor and diabetes researcher, Karolinska Institutet.
BOOKING CODE: **OK-13**

Stockholm University's Physics Show



Do you want to see experiments involving 100000 Volts or -200 degrees Celsius? Come and watch our interactive physics show! If you're lucky, you may also get to participate in it, if you dare...

The Physics Show is a public engagement project run by Stockholm University aimed at increasing interest in science and research. There are two showings to choose from for year 9 pupils and those in year 1 at upper secondary school. For older upper secondary school pupils, there are three afternoon showings at House of Science. Length: 30 mins

Physics show for year 9 and upper secondary year 1

Oskar Klein Room, AlbaNova University Centre
09:00 BOOKING CODE: **OK-FY09**
10:00 BOOKING CODE: **OK-FY10**

FysikShow för gy2-3

Curiesalen, Vetenskapens Hus
12:30 BOOKING CODE: **VH-FY1230**
13:30 BOOKING CODE: **VH-FY1330**
14:30 BOOKING CODE: **VH-FY1430**

Meet three researchers in the Svedberg room (FD5), AlbaNova University Centre

Seating capacity 265. Pre-booking is necessary – booking code in brackets ()

What is it really like to be a scientist? Take the opportunity to meet three researchers from completely different fields, who will chat about themselves, their research and their career paths. After the presentations, there is time for questions; all types of questions are welcome! Length: 45 mins.

10.30 The brain, spiders and healthcare

Participating researchers:
Niclas Kolm, evolutionary brain researcher, Stockholm University
My Hedhammar, spider silk researcher, KTH
Tommy Carlsson, healthcare researcher, Sophiahemmet University College
BOOKING CODE: **SV-1030**

13.00 Alzheimer's, quantum mechanics and cultural heritage

Participating researchers:
Azadeh Karami, Alzheimer's researcher, Karolinska Institutet
Magnus Liljenberg, quantum mechanics researcher, AstraZeneca
Anna Källén, cultural heritage researcher, Stockholm University
BOOKING CODE: **SV-1300**

11.45 Stem cells, particle physics and environmental research

Participating researchers:
Eva Hedlund, stem cell researcher, Karolinska Institutet
Christian Ohm, particle physics researcher, KTH
Naghme Nasiritousi, environmental policy researcher, Stockholm University
BOOKING CODE: **SV-1145**

14.15 Sustainability, the climate and inflammation

Participating researchers:
Tina Ringenson, sustainability researcher, KTH
Sara Berglund, climate researcher, Stockholm University
Peder Olovsson, inflammation researcher, Karolinska Institutet
BOOKING CODE: **SV-1415**

Guided tours and talks in the laboratories, AlbaNova University Centre

The Departments of Physics and Astronomy invite you and your class to visit and learn more about some of our current research.

Visit our quantum optics lab and learn about antimatter, cryotechnology or quantum computers. Discover an underground accelerator, do own simulations of the universe and take a look through our telescope on AlbaNova's roof.

Contributors: **Researchers from the Departments of Physics and Astronomy**, Stockholm University

Each tour takes approximately 60 minutes and will be run four times:

09.30 BOOKING CODE: **RUNT-0930**
10.30 BOOKING CODE: **RUNT-1030**
12.30 BOOKING CODE: **RUNT-1230**
13.30 BOOKING CODE: **RUNT-1330**



Researchers' Grand Prix, Oskar Klein Room, AlbaNova



FORSKAR GRAND PRIX

Competing researchers:

Judith Bütepage, AI researcher, KTH
Charlotte Skoglund, ADHD researcher, Karolinska Institutet
Rezan Güler, protein researcher, KTH
David Degerman, molecule researcher, Stockholm University
Mariette Annergren, transport researcher, Scania
Fredrik Kämpe, history researcher, Stockholm University
Tobias Alfvén, epidemics researcher, Karolinska Institutet

Who is the best in Sweden at communicating their research?

Come along and find out at the Researchers' Grand Prix!

Researchers have just four minutes to present their research in as engaging, inspiring and educational a way as possible. The audience, together with an expert jury, then votes to decide the winner, who goes forward to the national final on 27 November.

The jury consists of **Joakim Edsjö**, Professor of Physics at Stockholm University, **Malin Attefall**, science journalist and producer at SVT, and **Linda Söderlindh**, rhetorician at KTH. Compère: **Anders Sahlman**.

14:45-15:45 BOOKING CODE: **FGP2018**

Exhibition

The researcher exhibition is open to everyone from 9am to 3pm. No booking required.



ForskarFredag Stockholm invites you to a huge exhibition. Meet researchers, discover new technologies, experiment and ask questions to the experts. The exhibition takes place both inside the AlbaNova University Centre as well as outside.

At this year's exhibition there will also be researchers from the Climate Archive, the Brain Festival and Scania. Drop by the Teacher's Corner for tips and ideas from the Swedish Institute for Educational Research and Stockholm City. In the square you can take explore a research ambulance and in the Rotunda at AlbaNova, you can meet Intercult and hear more about the EU and international cultural cooperation. Also, meet researchers from KTH's visualization studio that works with movement control, gesture recognition, eye tracking, haptics, and stereoscopic viewing systems. Another popular activity is Research Discovery Quiz that encourages active learning in the form of a quiz put together by the exhibitors.

The quiz will be available at forskarfredag.se/stockholm during the week of the event.

Researcher presentations, Cleve room, House of Science



Bring your pupils to House of Science to meet researchers and students talking about their work.

In addition to larger presentations being held in AlbaNova, there is also the opportunity to meet researchers in smaller groups. A stone's throw away from the main event area in AlbaNova, you'll find House of Science, which offers curriculum activities around the natural sciences, mathematics and technology for school pupils during term time.

During the day, there are lots of activities, including presentations and the Physics Show, where you can meet researchers from all of the participating institutions.

All presentations at House of Science are 30 minutes long.

12.30 Sweden and Tanzania – collaborative health education research

Tanzania is one of the world's poorest countries, but it also has a fast-growing middle class. The Swedish Red Cross University College has been involved in setting up nursing courses at Kilimanjaro Christian Medical College. In a new project, students are collaborating on thesis work and research. This talk will present a number of these collaborative research projects, for example, on HIV, the use of helmets for motorcycle taxis, contraception, etc.

Contributors: **Gunilla Björling**, health researcher, Swedish Red Cross University College
BOOKING CODE: **VH-1230**
Cleve room

13.30 The stomach and bacteria - the good and the bad

Contrary to what many believe, we benefit greatly from bacteria. We are born without bacteria but very quickly become covered in bacteria, for example, there is lots of useful bacteria in the intestine, which helps us to absorb nutrients from food. But bacteria in the intestine can also cause problems, for example after taking antibiotics or when you have diarrhoea. Sometimes the patient can be treated with a 'stool transplant'.

Contributors: **Elisabeth Lissa Norin**, intestinal flora researcher, Karolinska Institutet
BOOKING CODE: **VH-1330**
Cleve room

14.30 Starburst galaxies and the Hubble telescope

How can nearby galaxies help us understand the early universe? The first galaxies were formed about 200 million years after the Big Bang and are very difficult to observe. One of the few ways to see these extremely distant galaxies is through radiation from ionized hydrogen gas. By studying relatively close galaxies using the Hubble space telescope we can understand how this radiation affects the properties of the galaxies. In this presentation pupils will be given an introduction to how galaxies are formed and evolve.

Contributor: **Jens Melinder**, astronomer, Stockholm University.
BOOKING CODE: **VH-1430**
Cleve room

Researcher dialogues at House of Science

You and your class will get to have a more intimate discussion with a researcher. Teachers will be put in touch with the researcher prior to the visit and the class should come prepared with questions. Each dialogue is about 45 minutes. Each room accommodates one school class.

Researchers from the Royal Institute of Technology, Strömme room



09.00 Bioplastics, glass and cars - what can cellulose be used for?

Helena Lennholm, cellulose researcher, KTH
BOOKING CODE: **ST-0900**

10.00 Bioplastics, glass and cars - what can cellulose be used for?

Helena Lennholm, cellulose researcher, KTH
BOOKING CODE: **ST-1000**

11.00 Who do we build homes for and why?

Erik Stenberg, built environment researcher, KTH
BOOKING CODE: **ST-1100**

12.00 Carbohydrates: building blocks for biomass and life

Francisco Javier Vilaplana Domingo, biotechnology researchers, KTH
BOOKING CODE: **ST-1200**

13.00 Self-driving cars – how will we use them?

Jonas Mårtensson, transport researcher, KTH.
BOOKING CODE: **ST-1300**

14.00 Protein materials - from spider silk to milk fibre

Christofer Lendel, chemical researcher, KTH
BOOKING CODE: **ST-1400**

Researchers from Stockholm University, Lovelace room



09.30 Exploring the forest of the Baltic Sea– the amazing life of bladder wrack

Ellen Schagerström, wrack researcher, Stockholm University
BOOKING CODE: **LO-0930**

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Ellen Schagerström, wrack researcher, Stockholm University
BOOKING CODE: **LO-1030**

11.30 Children and their families – what rights do children have in relation to their parents?

Emelie Kankaanpää Thell, child law researcher, Stockholm University
BOOKING CODE: **LO-1130**

12.30 Museums from a power-critical perspective – a battlefield for democracy?

Britta Zetterström Geschwind, museum researcher, Stockholm University
BOOKING CODE: **LO-1230**

13.30 Using sound waves to see – seabeds and what lies beneath them

Richard Gyllencreutz, seabed researcher, Stockholm University
BOOKING CODE: **LO-1330**

Researchers from the Karolinska Institutet, Kovalevsky room



09.00 How can we understand how the brain works?

Maria Lindskog, neuroscientist, Karolinska Institutet
BOOKING CODE: **KO-0900**

10.00 A journey through the intestines and beyond - how food and bacteria can influence our health

Chiara Sorani, gut immunologist, Karolinska Institutet (In English)
BOOKING CODE: **KO-1000**

11.00 Alcohol, drug and gambling addictions – what kind of digital interventions are available and how well do they work?

Anne Berman, addiction researcher, Karolinska Institute
BOOKING CODE: **KO-1100**

12.00 It takes a system to save a life

Veronica Lindström, ambulance researcher, Karolinska Institute
BOOKING CODE: **KO-1200**

13.00 Reprogramming our immune system can cure allergies, autoimmunity and cancer

Guro Gafvelin, immunologist, Karolinska Institute
BOOKING CODE: **KO-1300**

14.00 Reprogramming our immune system can cure allergies, autoimmunity and cancer

Guro Gafvelin, immunologist, Karolinska Institute
BOOKING CODE: **KO-1400**

Other activities at House of Science

Meet researchers, play games, participate in workshops and learn more about light.



Take part in Expedition Mundus Cleve room

Expedition Mundus is a fun educational game that familiarises whole school classes with scientific research.

Pupils are challenged to answer various scientific questions based on information collected in the form of pictures, texts and other sources about Mundus, a newly discovered inhabited planet. They experience the entire scientific process by working as a research team, formulating hypotheses, testing them and reporting their results. The game has been developed by the Youth Academy of the Netherlands.

Participating researcher: **Josefin Larsson**, Associate Professor in astronomy at KTH and member of the Youth Academy of Sweden

Length: 60 mins

Target audience: High school and upper secondary school classes, two sessions and max 1 class per session

Further info www.sverigesungaakademi.se/mundus

09.00 BOOKING CODE: **MUNDUS-0900**

10.30 BOOKING CODE: **MUNDUS-1030**

Light – puzzling but useful Meitner room

Light is made up of particles (photons) that move like waves. Can a particle simultaneously take two different paths to the same point? Come and see for yourself!

In quantum mechanics, the uncertainty principle says that you cannot precisely measure an object's position and its velocity (its momentum) at the same time. The more precisely the position is determined, the less precisely you can determine the speed. Is this true? We put it to the test!

Contributors: **Gunnar Björk** and **Marcin Swillo**, ADOPT - Advanced optics and photonics. Length: approx 30 mins. Target audience: upper secondary school classes.

09.30 BOOKING CODE: **LJUS-0930**

10.30 BOOKING CODE: **LJUS-1030**

12.30 BOOKING CODE: **LJUS-1230**

13.30 BOOKING CODE: **LJUS-1330**

Opinion and the election - workshop Franklin room

Why do we have opinion polls? How do they work? And why are they so controversial?

Elections mean opinion polls. The media extensively publishes its own polls and journalists ask politicians how they view the level of public support for their parties. Journalists and researchers comment on what this means in terms of the outcome of the election.

At the same time, there is ongoing debate about whether opinion polls matter.

Contributor: **Michele Micheletti**, Professor of Political Science, Stockholm University.

10.00 BOOKING CODE: **VAL-1000**

Nobel Museum talks, Curie room, House of Science

Who receives the Nobel Prize and why? Listen to talks given by the Nobel Museum, 30 mins

9.00 Nobel Prize winners and girls?

Out of over 900 Nobel Prize winners, only 5% are women. Who are they? What did they win the Nobel Prize for? And why are there only 48 of them?

Contributor: **Åsa Husberg**, museum educator
BOOKING CODE: **NOBEL-1**

10.00 Nobel Prize winners and geniuses?

Very few people are awarded the Nobel Prize, but what kind of people actually win the prize? Do they share something in common? What characteristics do you need to carry out research? Could you become a researcher?

Contributor: **Andreas Lündin**, museum educator
BOOKING CODE: **NOBEL-2**

11.00 Lower secondary pupils and researchers?

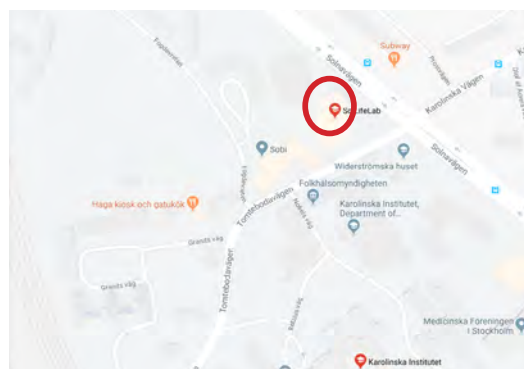
What does research involve? What does a researcher do? The world faces a number of challenges and research is a tool for finding new solutions to them. The Nobel Museum runs a research project for lower secondary school pupils in which pupils get to participate in real research.

Contributor: **Paulina Wittung Åman**, museum educator and manager of the school research project
BOOKING CODE: **NOBEL-3**

SciLifeLab

Study visits in Solna for upper secondary school classes, years 2-3

Visit SciLifeLab, a leading national centre for molecular biosciences with a focus on health and environmental research. The centre combines frontline technical expertise with advanced knowledge of translational medicine and molecular bioscience. SciLifeLab is a resource for researchers throughout Sweden and a collaboration between four host universities; Karolinska Institute, KTH Royal Institute of Technology, Stockholm University and Uppsala University.



Information about the visits

Visits are about 90 minutes long and consist of an introduction, two talks, as well as a guided tour of the labs. We recommend participating students have started Chemistry Level 2. A maximum of 70 in each session. Pre-booking is required.

Meeting point: SciLifeLab, Tomtebodavägen 23A, Solna

09.00-10.30 Visit 1

09:00 Introduction to SciLifeLab
09:15 Small molecules as biological tools
Martin Haraldsson, Karolinska Institutet
09:30 Using super computers to simulate proteins
Oliver Fleetwood, KTH
09:45 Molecular diagnostics for infectious diseases
Felix Neumann, Stockholm University
10:00 Tour of the laboratories
10:15 End, reassemble in the lobby
BOOKING CODE: **SCI-1**

10.30-12.00 Visit 2

10:30 Introduction to SciLifeLab
10:45 Organic chemistry as a source of new effective drugs
Ylva Gravenfors, Stockholm University
11:00 New method of positioning genes to improve the diagnosis of prostate cancer, Maja Marklund, KTH
11:15 Fast Food at SciLifeLab: From Big Mac to Big Data to Big Progress, Matthias Stahl, Karolinska Institutet
11:30 Tour of the laboratories
11:45 End, reassemble in the lobby
BOOKING CODE: **SCI-2**

13.00-14.30 Visit 3

13:00 Introduction to SciLifeLab
13:15 Personalized medicine for treating liver cancer using bioinformatics
Rui Benfeitas, KTH
13:30 How structural biology is being used to design drugs
Annette Roos, Uppsala University
13:45 Fluorescence Correlation Spectroscopy
Stefan Wennmalm, KTH
14:00 Tour of the laboratories
14:15 End, reassemble in the lobby
BOOKING CODE: **SCI-3**

14.30-16.00 Visit 4

14:30 Introduction to SciLifeLab
14:45 How structural biology is being used to design drugs
Annette Roos, Uppsala University
15:00 A journey through the body's cells and tissues, and how they interact, Michaela Asp, KTH
15:15 Clinical transcriptomics, Carsten Daub, Karolinska Institutet
15:30 Tour of the laboratories
15:45 End, reassemble in the lobby
BOOKING CODE: **SCI-4**