



SWEDISH FOUNDATION *for*  
STRATEGIC RESEARCH

# Annual Report 2022

SSF REPORT NO 39

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# Message from the CEO

## – Research in a changing world

**On February 24, 2022, the war against democratic Ukraine** escalates with a full-scale invasion by the Russian dictatorship. On March 4, 2022, SSF decides to announce grants for Ukrainian researchers offering them professional refuge at Swedish universities for between one and three years. Within a framework of SEK 42 million, 30 such grants are awarded. Ukrainian scientists are enriching Europe and creating capacity for the reconstruction of their country.

**SSF works to improve the quality of Swedish research.** The latest instrument is multidisciplinary research centres, where decisions regarding two funding calls have been made during the year. These involve semiconductor design and the supply of strategic metals. Several more are planned.

**In 2022, the Foundation disbursed SEK 673 million** and now supports more than 300 ongoing strategic research projects at universities, many of them in collaboration with industry. New funding calls worth SEK 294 million were established in 2022.

PHOTO: JENNY HALLENGREN



Lars Hultman, CEO of SSF.

**In addition, the portfolio** for career and mobility was expanded with eight grants within the Swedish-Israeli Lise Meitner programme, another SSF venture supporting creative exchanges through direct meetings between people which are otherwise limited by pandemic and geopolitical issues.

**The design and use of research infrastructures** is also in need of support. Hence, in 2022, seven new projects within the Research Infrastructure Fellows programme were each granted SEK 15 million. And soon, seven newly graduated PhDs from SSF's SwedNESS Research School will embark on postdoc studies abroad linked to neutron scattering,

with the possibility of repatriation after a few years.

**Certainly, 2023 will offer new challenges** and opportunities. I am confident and proud to continue developing SSF as an agile funder of research together with members of the Secretariat and the Board. And to act responsibly.

**Lars Hultman**



# Message from the Chair

**Following the lockdowns of the pandemic** in 2020 and 2021, and during Russia's current annexation and declaration of war against Ukraine, transparency and respectful conversation across borders are more important than ever. Hence, it is gratifying that SSF's programmes for excellent research aimed at strengthening Sweden strategically have recently been extended by several programmes aimed at international collaborations, individual grants to Ukrainian researchers, and multidisciplinary research centres. Today, alongside the scientific one, the word excellence has clearly acquired a broader meaning, where also extensive public welfare and humanism are highly important values.

**The concept of strategic research** embraces both basic scientific and applied disciplines, where the two mutually benefit each other through the exchange of scientific ideas, methods, and formulation of questions. In times of crisis, it is easy to reach for scientific lifelines that are considered directly applicable and to focus solely on current needs and the near future. SSF consolidates an important balance between the applied and basic sciences, thereby creating an equilibrium between today and the long term. This balance strengthens Sweden's ability to tackle the challenges of today while also giving us strength to meet future, as yet unidentified or illuminated, needs.

**Researchers and their scientific environment** are the two most important factors for excellent re-



PHOTO: JENNY HALLENGREN

Magnus Berggren, Linköping University, Chair of SSF's Governing Board.

search. The concept of a scientific environment is today much more complex than the traditional laboratory or some university corridors. Today, the individual researcher moves much more nomadically, both in the physical sense as well as in their minds. The combination of SSF's individual grants and multidisciplinary investments is well timed and works for Sweden in a clear strategic direction, which makes us even more attractive to the best research talents, both nationally and internationally.

**Magnus Berggren**



# January 2022

PHOTO: KIT



The medieval church Södra Råda was rebuilt using medieval methods.

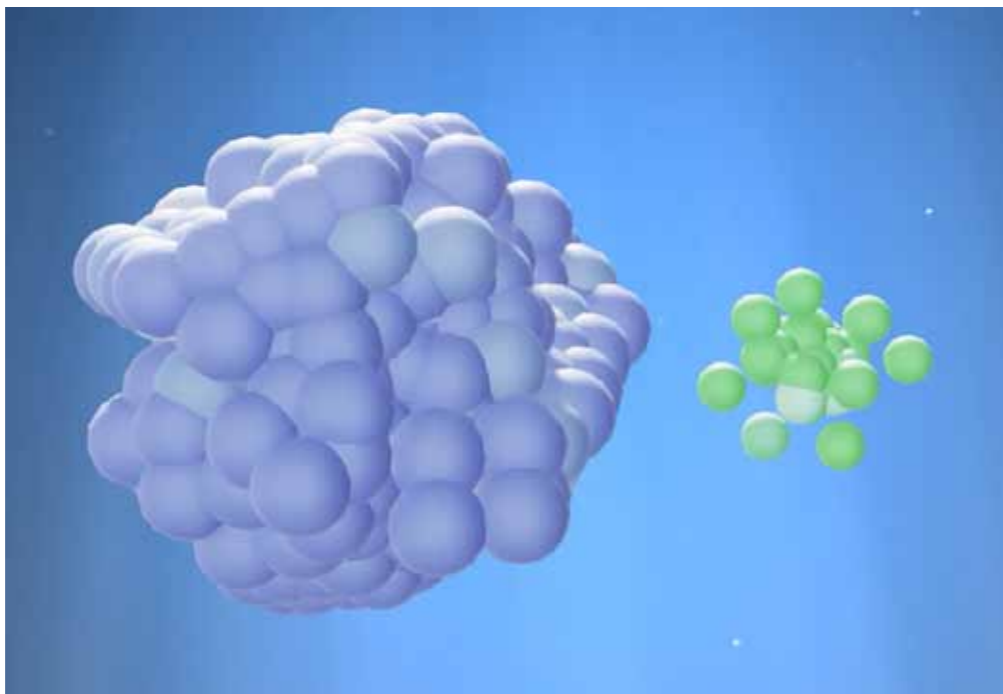
**SSF's collaboration with KIT Framtid** and Forskning & Framsteg is widened. Several short films are produced featuring everything from the revival of mammoths or the trustworthiness of politicians to researchers learning to use a nearly forgotten traditional timber construction method.

It is decided that Jonas Mattsson, Editor-in-Chief of Forskning & Framsteg will contribute news items for SSF's "Om Vetenskap" podcasts.



# February 2022

PHOTO: FILMFINITY



Katarina Roos is studying how quantum mechanical calculations can be used in the design of new drugs, watch the film here.

**SSF continues to support** Swedish researchers in their efforts to apply for grants within Horizon Europe (HEU), the EU's framework programme for research and innovation. In total SEK 10 million are set aside for researchers applying for funding to act as project coordinators within HEU Pillar 2.

The final film featuring participants of the **Ingvar Carlson Award 7** is released. Katarina Roos at Uppsala University uses quantum mechanics to design new drugs, watch the film here!

Time to apply for **Industry PhD Student projects 2022!**



# March 2022

**SSF issues funding calls for Ukrainian researchers** arriving in Sweden. SEK 40 million are earmarked for Ukrainian citizens with a PhD degree employed by Swedish universities or research institutes. In total, 27 Ukrainians at twelve different Swedish research organisations are provided with funding.

SSF's CEO visits KTH in Stockholm, Luleå University of Technology, Uppsala University, and Örebro University during a tour aimed at introducing SSF's new strategy. A total of 14 visits were made over a 12-month period.

Another funding call is made in support of researchers applying for grants for EU applications!



PHOTO: PIXABAY

SSF announces a SEK 40 million funding call for Ukrainian researchers in Sweden.



# April 2022

**SSF invests SEK 60 million** in semiconductor system design – the first funding call within **Multi-disciplinary Research Centers – MRC**.

The recipients of grants for **Future Software Systems (FuSS)** are selected.

Season two of SSF's "Om Vetenskap" podcasts opens. The first in the series features Enhanced Geothermal Systems (EGS), a technology capable of heating entire cities. New podcasts are available every other Friday!

Also in 2022, **Strategic Mobility** offers researchers the opportunity to move between industry/business/authorities/hospitals and academia/research institutes.

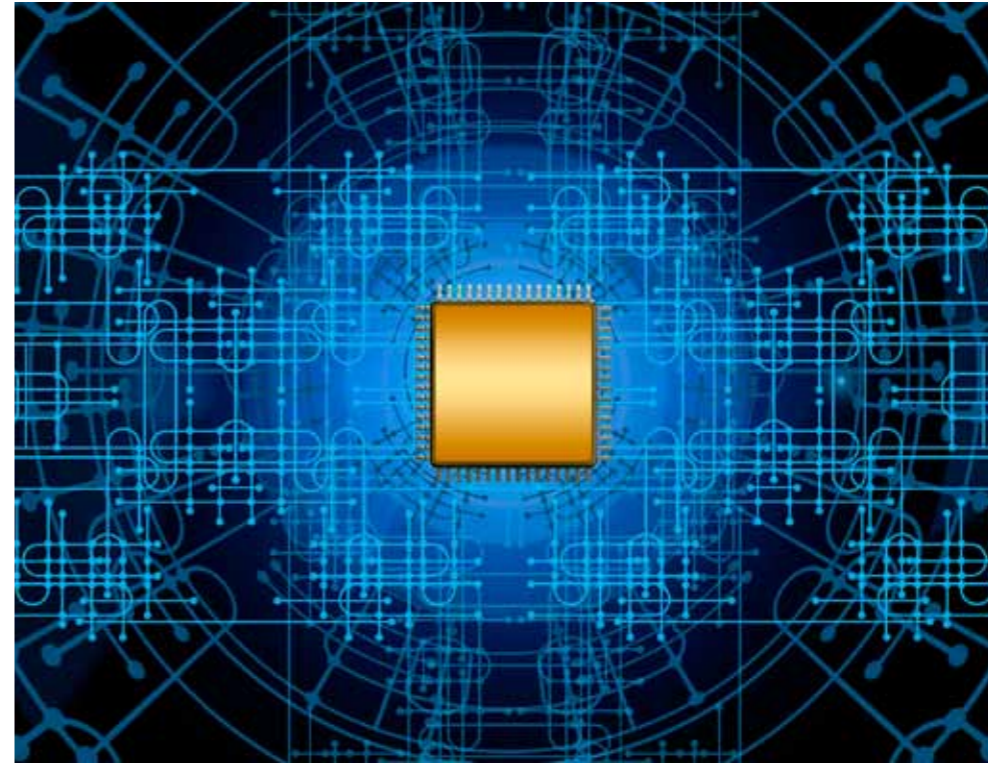


PHOTO: PIXABAY

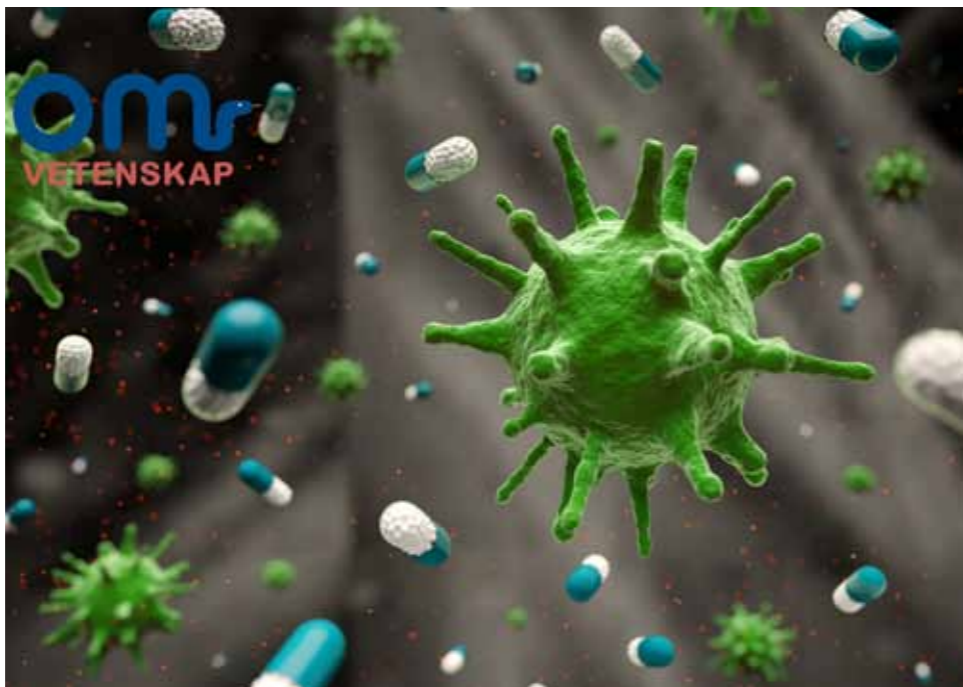
SSF spends SEK 60 million on semiconductor system design.





# May 2022

PHOTO: ISTOCK



There are antibiotics against bacteria, but there is no equivalent against viruses. Listen to the “Om Vetenskap” podcast.

**Two new “Om Vetenskap” podcasts** are aired: “A pill against viruses – how to avoid the next pandemic?” and “Can new technology solve the semiconductor shortage?”

SSF’s CEO Lars Hultman took part in the seminar “Research in Sweden – top or bottom?”, organised by the Confederation of Swedish Enterprise.

The programme **Generic methods and tools for future production** ends with an invitation to the final report at the **SPS 2022 (Swedish Production Symposium)** in Skövde.

SSF employees join a study trip to Israel to learn about the country’s R&D system.



# June 2022

**Seven SwedNess PhDs receive new grants** in SFF SwedNess postdoc and repatriation, an opportunity to continue their careers in neutron scattering. The season's two final "Om Vetenskap" podcasts go on air – "Is hydrogen the solution to the climate crisis?" and "AI in the fight for biodiversity". The seven projects that receive funding under the Research Infrastructure Fellows (RIF) programme are introduced. RIF was first announced in 2014, and the projects will each receive SEK 15 million over a five-year period. SSF's Governing Board makes a study visit to Abisko Scientific Research Station.



PHOTO: ESS

The SwedNESS graduate school trains PhD students in science based on neutron scattering aimed at ESS.



# July 2022



A packed “Future Research” magazine is published, a collaboration between SSF and Nextmedia.

**For the eighth time**, the Foundation has appointed **Future Research Leaders (FFL-8)**. The 16 selected researchers will each receive a grant of SEK 15 million over a five-year period and will benefit from the programme’s thorough leadership training.

In this year’s “Future Research” magazine, you can read about Swedish research projects at the absolute forefront of research, for example about how carbon dioxide can be converted into food, how researchers are gearing up for early diagnosis and new treatment of Alzheimer’s disease, and about the development of safer and more efficient nuclear power.



# August 2022

**SSF's CEO Lars Hultman** speaks at the Monday Movement's demonstration for Ukraine at Norrmalmstorg in Stockholm. He talks about the Foundation's programme for Ukrainian researchers, now involving 30 people.

The Foundation visits the Embassy of Japan as Kyushu University opens an office for collaboration in Stockholm.



PHOTO: LARS HULTMAN

Every week, the Monday Movement is gathering hundreds of people showing their support for Ukraine.



# September 2022

PHOTO: ISTOCK



SSF is investing SEK 20 million in research institute PhD students.

**SSF invests SEK 20 million** in Research Institute PhDs (FID-22). The grants are earmarked for employees at research institutes wishing to study for a PhD degree in science, medicine or technology.

Scientific Secretary Gergana Hamberg presents SSF's calls during the Homecoming Day at the Wennergren Centre, an event organised by Uppsala University and aimed at informing young researchers about the programmes offered by various funding bodies.

A request is made to the more than 300 project managers in receipt of SSF grants to participate in "Om Vetenskap" podcasts or to bring forward ideas for topics.



# October 2022

**Also in 2022, SSF is participating in an exchange programme** with Japan Society for the Promotion of Science (JSPS) aimed at encouraging young PhDs to participate in a research exchange with leading Japanese research groups.

This year's approved **Industry PhD** projects are presented.

In total, eight research projects share close to SEK 50 million from the **Lise Meitner Grants for Israeli-Swedish Research Collaboration**, a collaboration between SSF and Israel's Ministry of Innovation, Science and Technology (MOST).

SSF co-authors the report "Diverse usage broadens the benefits of ESS" on how more people should get access to the research infrastructure.



PHOTO: ISTOCK

Eight projects share close to SEK 50 million from the Lise Meitner Grants for Israeli-Swedish Research Collaboration.



# November 2022

**They can sniff and detect dangerous emissions,** collect data for climate action, monitor our coasts, help algae farmers and much more. The project **Swedish Maritime Robotics Centre (SMaRC)** is developing the underwater robots of the future. Robots that can navigate and communicate underwater and that also will make their own decisions! The film about the SMaRC project premieres.

Once again, SSF provides grants for Swedish researchers wanting to apply for EU grants as project coordinators in HEU Pillar 2.



PHOTO: JONAS STENSTRÖM

Premiere for the film about SMaRC and robots capable of making their own decisions.



# December 2022

**Nine projects share SEK 10 million** in the call Strategic Mobility. One project is developing electromagnetic technology for more efficient pollutant-free steel production. Another project will use “bio printing” to refine the printing of three-dimensional artificial tissues that can be used, for instance, to test how drugs affect human tissue.

SSF is part of the IVA project Metals and Minerals at a Crossroads, focusing mainly on how Sweden and Europe can secure access to such resources sustainably.



FOTO: MARKUS JORDÖ

This year's recipients of grants in the “Strategic Mobility” programme are appointed.





# Funding Calls and Decisions 2022

## Funding Calls

<b>January</b>	EU application support (EU22)
<b>Februar</b>	Industry PhD students 2022 (ID22)
<b>March</b>	Ukrainian researchers (UKR22)
<b>April</b>	MRC, Semiconductor System Design (CSS22)
	Strategic Mobility (SM22)
<b>August</b>	Research Institute PhD students 2022 (FID22)
<b>December</b>	MRC, Provision of Strategic Metals and Minerals (CMM22)
	MRC, Medical Prevention (CMP22)

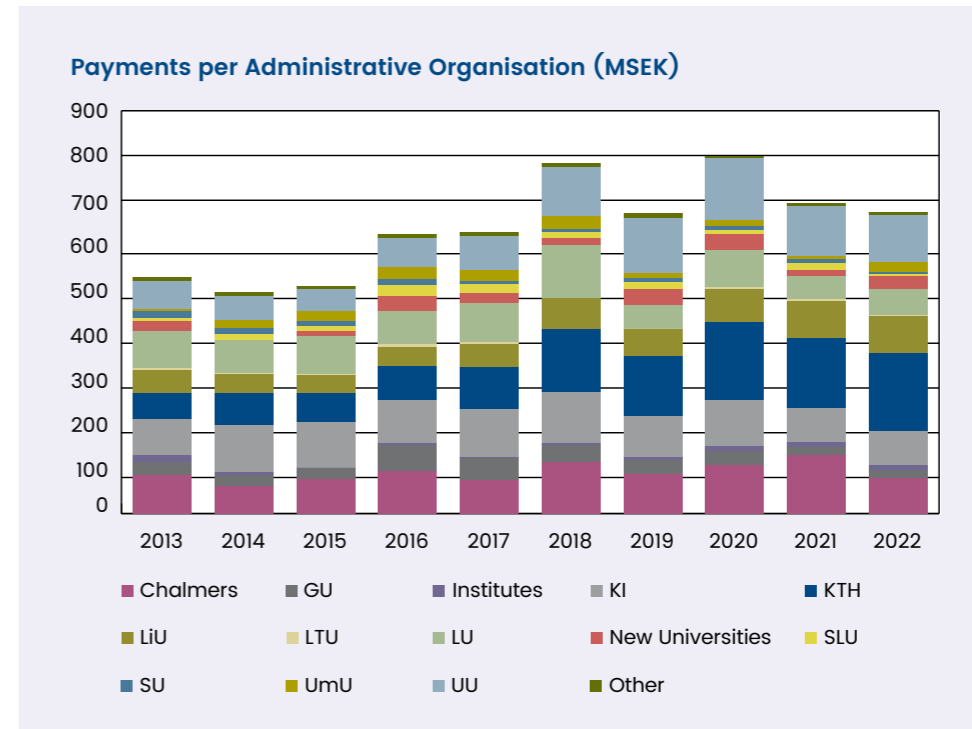
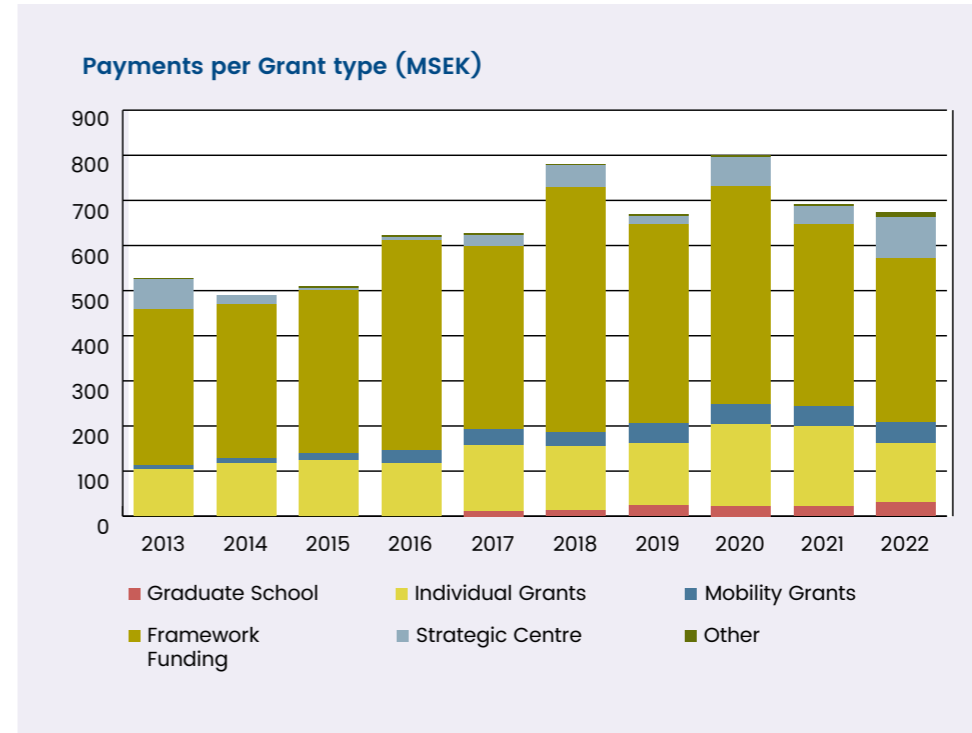
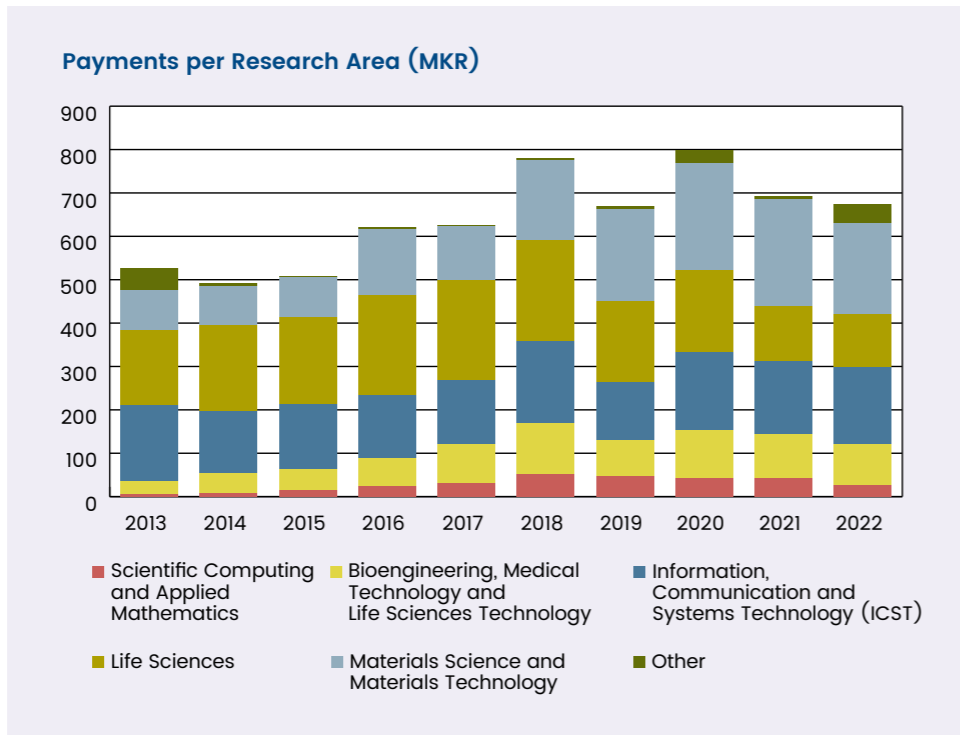
## Funding Decisions

<b>March</b>	EU application support (EU22)
<b>April</b>	Future Software Systems 2021 (FUS21)
<b>June</b>	EU application support 8 (FFL21)
	SwedNESS postdoc 2021 (SNP21)
	Research Infrastructure Fellows - 2 (RIF21)
<b>October</b>	Industry PhD students 2022 (ID22)
<b>December</b>	Strategic Mobility (SM22)



# Distribution of Grants

The graphs show grants by SSF during the past ten years according to the type of grant, research area and university.



# Podcasts and films in 2022

The film about the smart underwater robots in the project Swedish Maritime Robotics Centre (SMaRC), and the second season of SSF's "About Science" podcasts launched during 2022. Watch and listen to samples here!



## Swedish underwater robot is learning to make its own decisions

They can detect dangerous emissions, collect data for climate action and monitor our coasts. Watch the film here!



## EGS – geothermal heating on steroids

Ground source heating is an environmentally smart way to heat houses. And, if you drill down several kilometres, the heat will be enough to supply an entire city. Listen to the podcast here!



## Is hydrogen the solution to the climate crisis?

Imagine driving a car that emits only water as exhaust. Or to be able to easily store the excess electricity from your solar cells in a tank in your garden. Listen to the podcast here!



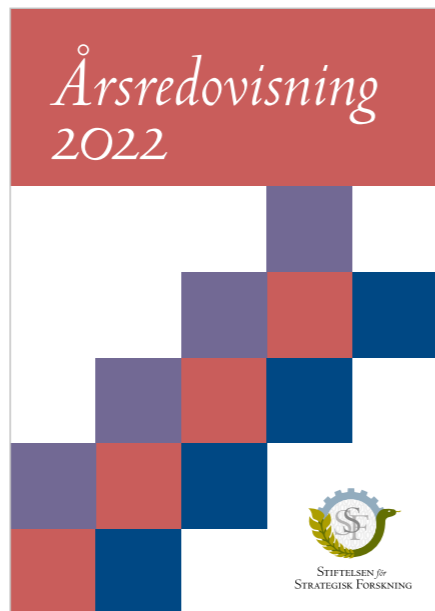
## AI in the fight for biodiversity

AI can help scientists to conserve biodiversity by enabling them to understand which species are next in line to become extinct and to select which areas to protect first. Listen to the podcast here!

Watch more films about SSF's projects here!  
Listen to more of SSF's "Om Vetenskap" podcasts here!



# Annual Accounts 2022



**SSF's capital is made up of funds transferred to the Foundation in 1994 following a decision by the Swedish government.** By careful management of these funds over the years, the Foundation had funds totalling SEK 12.3 bn on 31 December 2022, after the distribution of research grants worth SEK 17.2 billion during the period 1994–2022.

[Read the full Annual Accounts here.](#)



# Message from the Chair of the Asset Management Committee

**In 2022, after two dramatic years** marked by the pandemic – first the initial crisis and then the remarkable recovery – the grim bill arrived in the wake of overheated economies. In combination with the effects of the war in Ukraine, energy prices were pushed up to new record levels and the strong economies also brought unprecedented inflationary pressure in large parts of the world, with levels around 10 percent in many places. Thus, the year was characterised by the central banks fighting inflation, resulting in sharply increased interest rates, which in itself creates great concern in the financial markets. Both equities and fixed rates fell sharply in value, and raw materials were the only major asset class that rose in value during the year.

**As for the Foundation, we entered the year** with a record year behind us, where we achieved a return of just over 22 percent and a new top level for our managed assets. 2022 was a radically different year, with both equities and fixed rates weighing heavily on returns. At the same time, in recent years we have allocated increasing amounts of capital to alternative asset classes, including a large proportion of real estate and unlisted stocks and interest. These types of investments withstood the downturn extremely effectively and enabled us to successfully



navigate the difficult market. The portfolio lost only 2.5 percent, which compares very well with other foundations and institutions with significantly larger amounts of listed shares, which in many places fell by 15 to 20 percent.

**Ann Grevelius**



# SSF's Secretariat



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# SSF's Governing Board



PHOTO: JENNY HALLENGREN

From left: Charlotte Brogren, Alimak Group AB; Erik Valtonen, Consultant; Claes Wohlin, Blekinge Institute of Technology; Kerstin Johannesson, Gothenburg University; Annika Sanfridson, Cantragia AB; Magnus Berggren, Linköping University, Chair; Katarina Gårdfeldt, Swedish Polar Research Secretariat, Vice chair; Gösta Lemne, Ericsson; Björn Ottersten, KTH Royal Institute of Technology.

Missing: Pernilla Wittung Stafshede, Chalmers University of Technology.

For information regarding board memberships and other interests of the members of the Board, the CEO, and the members of the Asset Management Committee, please contact SSF's Secretariat.



# About SSF

- Supports research and research training within engineering, medicine, and natural sciences in order to strengthen Sweden's future competitiveness.
- Works to reform Swedish research towards excellence and impact.
- Creates bridges between basic research and demand-driven research where results will be utilised.
- Continuously finances 300 projects at universities – many of them in collaboration with industry and research institutes.
- Carries out targeted research initiatives that are often interdisciplinary and multidisciplinary.
- Awards career grants to outstanding research leaders, with emphasis on talented young people.
- Encourages researchers' mobility around the world, as well as between academia, institutes, industry, healthcare, and other sectors in society.
- Contributes to the creation of research instruments, methods, and techniques, as well as competence for research infrastructure.
- Annually distributes grants worth several hundred million SEK.



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STRATEGIC RESEARCH

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