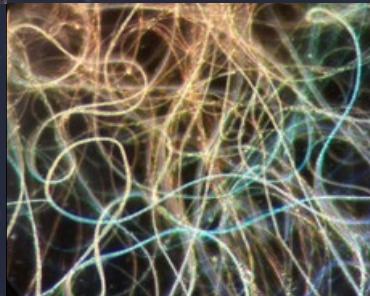
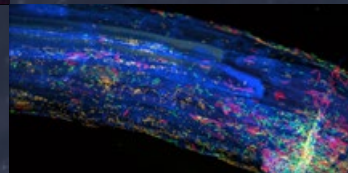
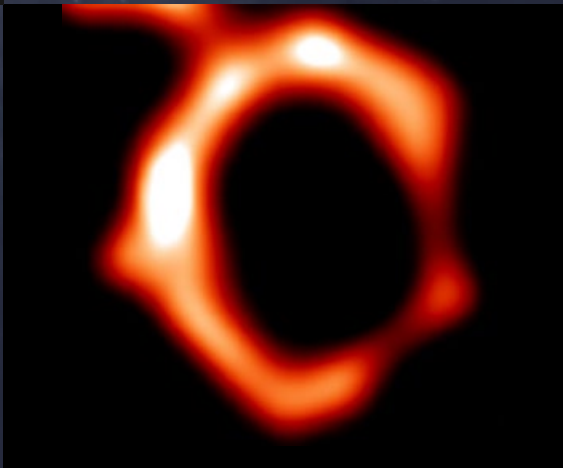
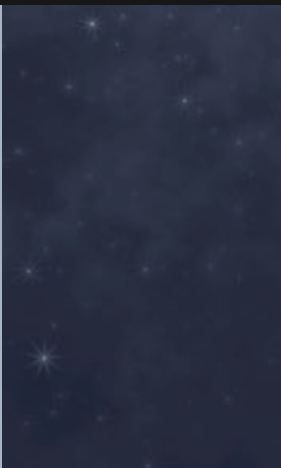
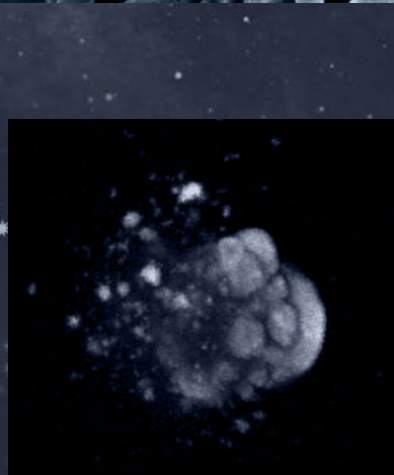
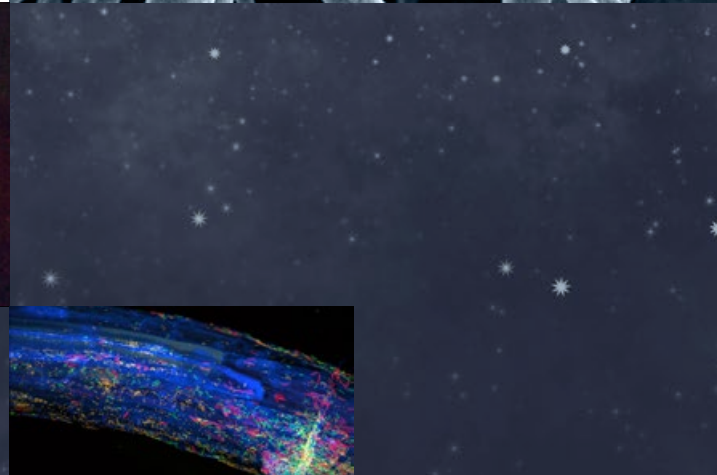
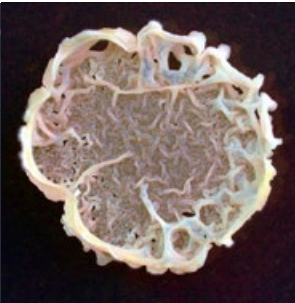
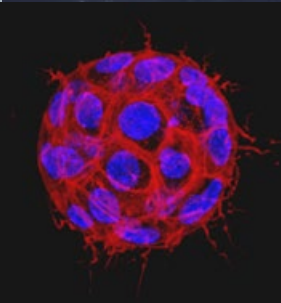
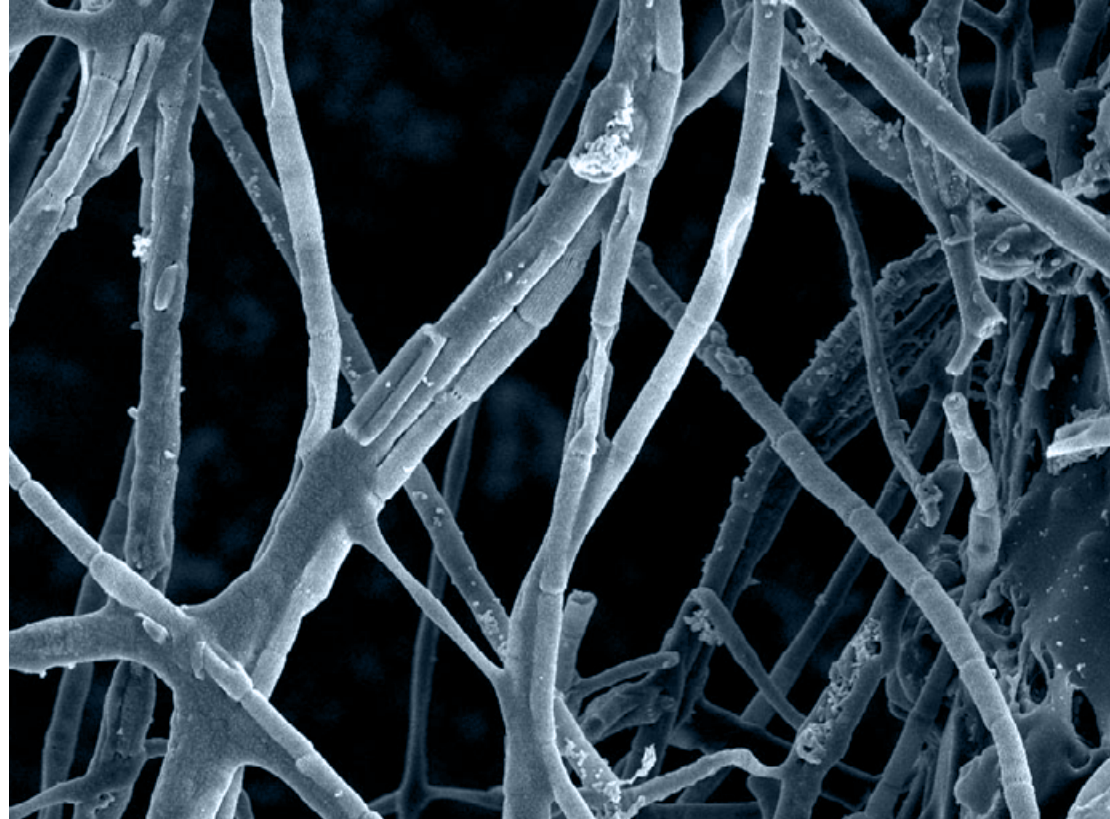


# ANNUAL REPORT

2022



# Key figures

	2022	2021	2020	2019	2018
<b>Grants and distributions</b>					
Total number of grants at year-end	58	52	49	47	53
Annual distributions, million DKK	371.0	360.0	335.2	414.4	409.3
<b>Return on investment</b>					
Bonds and cash, million DKK	-484.0	-8.7	104.1	140.2	-12.6
Equities, million DKK	-372.0	441.4	251.5	484.4	-179.1
Total return, million DKK	-856.0	432.7	355.5	624.6	-191.7
<b>Administrative costs</b>					
Administrative costs including depreciation, million DKK	12.8	12.8	12.3	13.9	13.2
Administrative costs compared to distributions, %	3.5	3.6	3.4	3.4	3.2
Administrative costs per grant, million DKK	0.2	0.3	0.3	0.3	0.2
<b>Capital</b>					
Net capital at year-end, million DKK	4,659.4	5,903.0	5,846.0	5,841.0	5,468.5

# Content

<b>Key figures</b>	<b>2</b>
<b>Preface</b>	<b>4</b>
Main lessons from a year of world stage recognition	4
<b>DNRF main events in 2022</b>	<b>7</b>
DNRF outreach	15
<b>New grants 2022</b>	<b>16</b>
Meet the 11 new DNRF Centers of Excellence	17
The 11th application round for Centers of Excellence – statistics and proces	29
The Pioneer Center initiative	34
Meet the new DNRF Chairs	36
<b>Final evaluation 7th round Centers of Excellence: Impressions</b>	<b>39</b>
<b>The DNRF Photo Competition</b>	<b>44</b>

<b>Reports</b>	<b>50</b>
Ongoing activities	51
The board	57
Statement by management on the annual report	58
<b>Financial reports</b>	<b>59</b>
Total assets and return on investment	60
Independent auditor's report	66
Accounting policies	69
Income statement January 1 – December 31	71
Balance sheet December 31	71
Statement of changes in Net Capital for 2022	72
Notes	72
<b>Secretariat</b>	<b>77</b>

# Preface

## *Main lessons from a year of world stage recognition*

“It was the first Danish Nobel Prize for a quarter of a century, and builds on research conducted at a DNRF Center of Excellence of which Morten Meldal was the leader.

The year 2022 was a distinct one from the DNRF's perspective.

We celebrated the funding of **11 new Centers of Excellence**, each of which represents original and ambitious scientific endeavors across the academic spectrum; we look forward to seeing them unfold over the coming six to ten years. We also awarded **new DNRF chair grants**, which will allow the recruitment of excellent researchers from abroad.

We co-funded **two new Pioneer Centers**: one aiming to tackle the hard scientific questions in regard to a **green transition in agriculture** and the other one aiming to gaze into deep chemical space to pave the way for **power-to-X solutions on a commercial scale**.

Meanwhile, we took stock of the results of 8 Centers of Excellence that concluded ten years of brilliant research.

See a short presentation of new DNRF grants on [page 16](#).

Like many others, we were excited and proud to see the announcement of Morten Meldal as the winner of the Nobel Prize in chemistry in October 2022. It was the first Danish Nobel Prize for a quarter of a century, and builds on research conducted at a DNRF Center of Excellence of which Morten Meldal was the leader. The award reflects, first of all, on the work of Morten Meldal and the team of scientists who contributed to that work, and it is also a tribute to the high scientific level attainable at Danish universities.

When Meldal received the prize, he took the opportunity to remind us that anyone who wants to realize this level of achievement is foolish to be in it just for the prizes.

The wisdom of this is, of course, not that medals are “given to fools,” a saying well-known among Danes and originating from a song by P.A. Heiberg. Rather, it reflects the experience in scientific fields that the transformative leaps forward are usually

“his technique, over the years, has become widespread and is now used in industrial activities such as drug design and materials development.

the product of the patient and systematic work of dedicated and talented scientists.

Neither should Meldal's point signal a disinterest of or ignorance about whatever happens after the research per se. On the contrary, he is rightly proud that his technique, over the years, has become widespread and is now used in industrial activities such as drug design and materials development.

Innovation is common among DNRF grant holders who, for instance, are involved in 15 percent of all university spinouts, despite accounting for only 1.7 percent of Danish public spending on research

and innovation. Over the life of a Center of Excellence – and not least during the years following – a multitude of ideas and applications grow from the fertile soil of the research conducted at the research centers.

In the same vein, DNRF grant holders report that the build-up of results and reputations over the life of a center give them an edge in the competition for international talent, often in short supply, or international funding and attention. A prime example of the spill-over effects due to the build-up of research strongholds was the NATO decision, announced in April 2022, that it would

place its Center for Quantum Technology at the Niels Bohr Institute following years of investment in this field, much of which was in the form of DNRF Centers of Excellence.

See a collection of the main DNRF news in 2022 on [page 7](#).

We are thrilled to see that the persistent efforts of the Danish quantum science environments have resulted in this well-earned recognition, and that the Novo Nordisk Foundation has decided to further invest in this development with the ambitious goal of developing a fully functional quantum computer.



“ A prime example of the spill-over effects due to the build-up of research strongholds was the NATO decision, announced in April 2022, that it would place its Center for Quantum Technology at the Niels Bohr Institute.

Meldal's message invites us to turn our attention to the requirements of Danish frontline research. Keywords here seem to be time, continuity, interdisciplinarity, flexibility and, not least, talent. At the DNRF we will continue to analyze what constitutes optimal conditions so that we tune the DNRF funding instruments to make sure that they support the needs of Danish frontline research.

In 2022 we welcomed Christina Egelund as the new minister of Higher Education and Science. We are looking forward to contributing to the accomplishment of the ambitions of her and the government, pertaining to Danish top research, talent and innovation.

*Professor Jens Kehlet Nørskov, Chair of the board of the DNRF*  
*Professor Søren-Peter Olesen, CEO of the DNRF*



# DNRF main events in 2022

Every year, DNRF grant holders produce a tremendous amount of research, talent, and innovation.

The year 2022, however, is likely to be remembered as one in which the endeavors of DNRF grant holders received recognition at the highest international level: The Nobel Prize to former center leader Morten Meldal and the successful effort in attracting the new NATO Quantum Technology Center. This recognition demonstrates once again that Danish research, given the right conditions, can truly be world leading.

The following pages contain a brief description of some of the significant developments from DNRF grant holders.

DNRF key activity and performance figures for 2022 can be found at [dg.dk/en/impact/](https://dg.dk/en/impact/)

- The Nobel Prize to former center leader Morten Meldal (page 8)
- NATO Quantum Technology Center (page 9)
- Eleven new DNRF Centers of Excellence (page 10)
- Four DNRF Chairs (page 11)
- Two new Pioneer Centers for the green transition (page 12)
- New DNRF networking retreat promotes the next generation of research leaders (page 13)
- The DNRF signs EU agreement on responsible research assessment (page 13)
- DNRF focuses on FAIR data management (page 14)

October 2022

## The Nobel Prize to former center leader Morten Meldal

“Following the announcement of his Nobel Prize, Meldal pointed out that “the freedom that comes with the DNRF grants was essential to allow us to follow the clue that ultimately led to the click reaction.”

Morten Meldal had been the center leader of the DNRF Center for Solid Phase Organic Combinatorial Chemistry (SPOCC) for five years when he published the paper for which he would receive the Nobel Prize twenty years later. According to Meldal, the research breakthrough brought the center to the front line in the field. The fundamental scientific discoveries spawned a number of applications. One of the most successful among these was the new method called “click-chemistry,” now widely used in the development of new medicine and materials.

Following the announcement of his Nobel Prize, Meldal pointed out that “the freedom that comes with the DNRF grants was essential to allow us to follow the clue that ultimately led to the click reaction.”



Credit: © Nobel Prize Outreach. Photo: Nanaka Adachi



April 2022

## NATO Quantum Technology Center

In the race to attract a new NATO quantum technology center, the huge expectations regarding the potentials of quantum technology to provide, e.g., unhackable communications were matched by the fierce competition between Denmark and countries such as Holland, Germany and UK. The center will have a key role in preserving NATO's technological edge.

In April 2022, it was announced that Denmark won the competition and that the center will be located at the Niels Bohr Institute. Over the past several years Denmark has built up very strong capacities in research and innovation in quantum science, much of which has been in the form of DNRF Centers of Excellence. Since 2009, the DNRF has awarded grants to five core quantum centers and several additional centers that also conduct research in quantum science, with a total allocation well beyond 400 million DKK.

“ Since 2009, the DNRF has awarded grants to five core quantum centers and several additional centers that also conduct research in quantum science, with a total allocation well beyond 400 million DKK.



Peter Lodahl is professor of the Hy-Q Center of Excellence at the Niels Bohr Institute

May 2022

# 11 new DNRF Centers of Excellence

In May 2022 the DNRF board announced its decision to fund 11 new Centers of Excellence, following a long and thorough selection process. The new centers represent very different areas of research, ranging from quantum science, genetics, and health research, to economics and medical humanities.

DNRF Centers of Excellence give rise to fruitful interdisciplinary environments that foster innovative research and solutions. The centers are established for a period of six years, with the possibility of an extension for another four years, with the prerequisite of a satisfactory midterm evaluation.

[Read more about the 11 new Centers of Excellence.](#)

“DNRF Centers of Excellence give rise to fruitful interdisciplinary environments that foster innovative research and solutions.”



March, August and November 2022

## Four DNRF Chairs

With applications submitted during the three rounds in 2022, the DNRF board awarded four DNRF Chairs, allowing the universities to support and boost the start-up research activities of potential or newly recruited outstanding tenured professors at Danish universities right from the beginning of their employment.

[Read more about the new DNRF chairs and the Chair program.](#)



June &amp; December 2022

## Two new Pioneer Centers for the green transition

In 2022, two new Pioneer Centers were opened, meaning that three out of the four planned Pioneer Centers have now become a reality.

In June 2022, LandCRAFT (Pioneer Center for Landscape Research in Sustainable Agricultural Futures) was opened. With a 250 M DKK 13-year budget, the center is setting out to solve the fundamental questions pertaining to the emission of climate gasses from agriculture and to make important contributions to more climate-friendly production in the future. The center is led by Professor Klaus Butterbach-Bahl, a pioneer in the area who was recruited from the Karlsruhe Institute of Technology.

In December 2022, CAPeX (Pioneer Center for Accelerating P2X Materials Discovery) was opened. It has a 300 M DKK 13-year budget and addresses the hard questions that must be solved for Power-to-X to become available at the scale needed for the green transition to become a reality in Denmark and elsewhere. The center is led by two Danish scientists who are world leaders in their fields: Professor Tejs Vegge at the Technical University of Denmark and Professor Frede Blaabjerg at Aalborg University. Contract negotiations are ongoing.

[Read more about the Pioneer Center initiative.](#)

“addresses the hard questions that must be solved for Power-to-X to become available at the scale needed for the green transition to become a reality in Denmark and elsewhere.



Professor Klaus Butterbach-Bahl, a top scientist from Karlsruhe Institute of Technology, has moved to Aarhus University to lead Land-CRAFT to pave the way for a green transition in agriculture.



Professor Tejs Vegge (Left), Head of CAPeX and Professor Frede Blaabjerg (Right), co-lead in CAPeX that sets out to solve fundamental questions needed to scale up power-to-X



September 2022

## New DNRF networking retreat promotes the next generation of research leaders

The DNRF organized its first course specifically for young research talents from the DNRF Centers of Excellence. With the networking course, the researchers get the opportunity to meet each other outside the centers and discuss issues related to working in a research career.

The DNRF invited a number of speakers who, based on their extensive experience of working at a Center of Excellence, shed light on various aspects of the role of a head

of research. For example, what challenges lie in going from being a young researcher to being the leader of a team? How do you ensure innovation and excellence in your research, and what about the world outside the laboratory? How can you work across disciplines and sectors?

The retreat was very popular and will be repeated in 2023.

[Read more about the DNRF next generation retreat.](#)



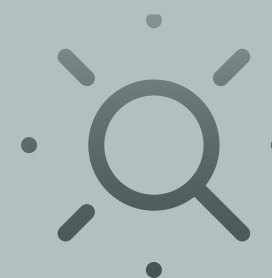
October 2022

## The DNRF signs EU agreement on responsible research assessment

The DNRF has signed the Agreement on Reforming Research Assessment and, as part of this, has joined the COARA coalition. The vision of COARA is that “the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and

impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.”

The DNRF is already well aligned with the principles and aims of this vision.



# COARA

September 2022

## DNRF focuses on FAIR data management

During 2021-2022, the DNRF asked all of its grant holders to report on their views on and experience with FAIR data management.

FAIR stands for findable, accessible, interoperable, and reusable, and its implementation as a standard is high on the agenda in Europe and elsewhere as part of the open science and research integrity movements. More FAIR data management should pave the way for better data use and improved reproducibility in research.

DNRF grant holders' responses were summarized in the DNRF's annual meeting publication for 2022 and were presented and discussed at the DNRF annual meeting in September. The responses testify, first of all, to the substantial support of the FAIR approach among DNRF grant holders and to a heterogeneity regarding, e.g., the extent and relevance of data production, storage and reuse as well as FAIR readiness and motivation. These points, among others, were brought up in the presentations given by Elvira Brattico, Philip Trøst Kristensen, and Søren Leth-Petersen, all researchers at DNRF Centers of Excellence.

On par with this, a main message from Annemarie Falktoft, deputy director at the Danish Agency for Higher Education and Science, who spoke at the meeting, was that FAIR compliance will not be nor should it be a "one size fits all" exercise.

John Renner Hansen, who leads the national implementation of FAIR data management for Denmark, pointed out that FAIR data management must not be confused with open science. FAIR data should be "as open as possible, as closed as necessary."

The DNRF has now started asking its grant holders to report specifically on FAIR data management and is awaiting further directions from the national follow-up group.

Read the DNRF's annual meeting publication 2022: [Digitization and FAIR data](#).



# Stay in touch and get the latest updates from DNRF



**LinkedIn**

@Danmarks Grundforskningsfond



**Twitter**

@GrundforskFond



**Newsletter** dg@dg.dk





# New grants 2022

- Meet the 11 new Centers of Excellence
- The 11th application round for Centers of Excellence – statistics and process
- The Pioneer Center Initiative
- Meet the new DNRF Chairs



# Meet the 11 new DNRF Centers of Excellence

The Center of Excellence (CoE) program is the DNRF's primary funding mechanism and the foundation's flagship. A center grant is large and flexible, and a center may have a lifetime of up to 10 years. Only top researchers with the most ambitious ideas will be awarded a CoE through fierce competition involving a two-stage application process.

The objective of the CoE program is to strengthen Danish research by providing the best possible working conditions and organizational set-up for selected top researchers. It is the DNRF's clear strategy to focus on supremely talented individuals and provide them with sufficient funds, long-term funding horizons and autonomy. The CoE's may be established within or across all fields of research.

*Note: Contract negotiations with the new centers are currently ongoing.*

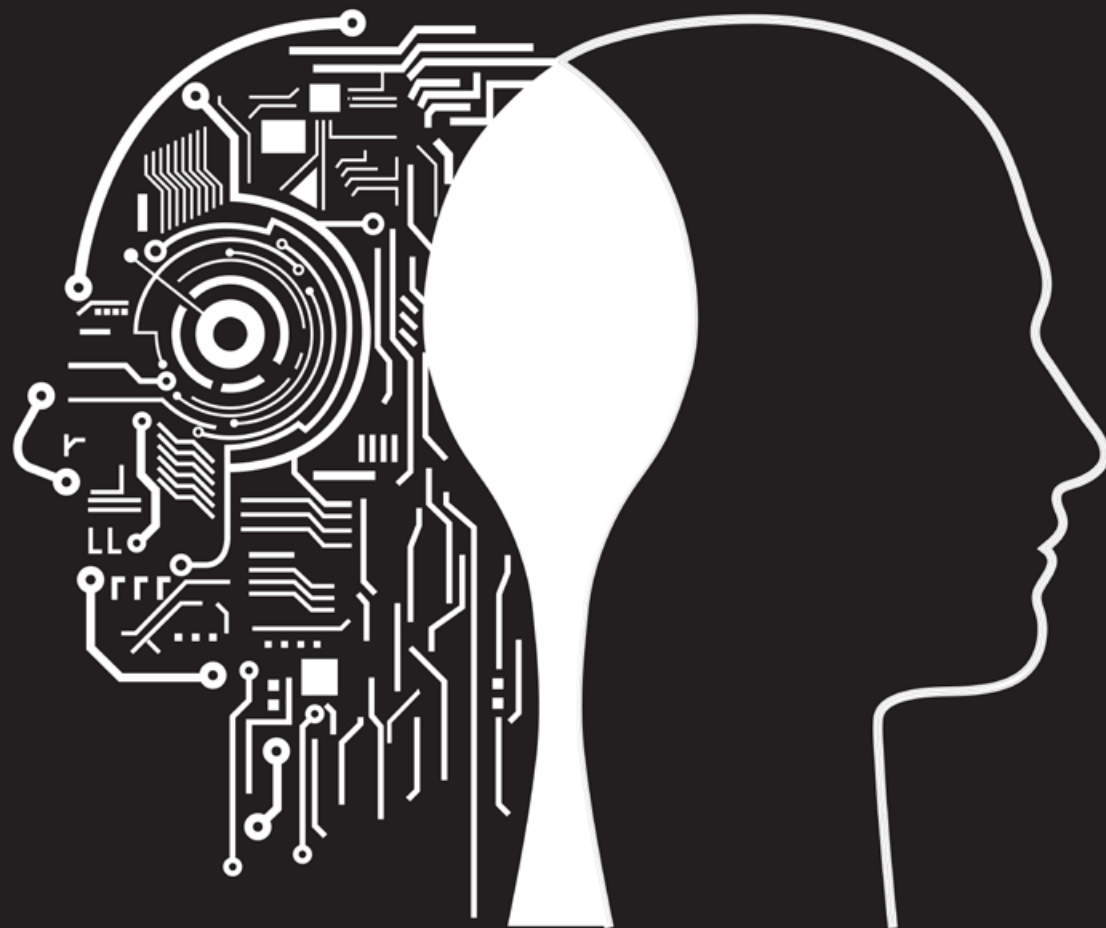
“In Denmark, we are skilled at creating the framework for fruitful, interdisciplinary environments that foster innovative solutions. And with our Centers of Excellence, we stimulate interdisciplinary collaboration and allow it to grow over several years.

*Professor Jens Kehlet Nørskov, chair of the DNRF*

“The applicants represent very different areas of research, and they have all proven that they can think outside the box and stay ahead of developments.

*Søren-Peter Olesen, CEO of the DNRF*

## Centre for Culture and the Mind – **CULTMIND**



CULTMIND explores how cultural contexts shape conceptualisations of the human mind, and experiences and treatments of mental illness. Bringing together humanities and *psy* disciplines, it aims to develop a new framework for understanding cross-cultural interventions, which pushes beyond the binary of universalism and cultural relativism in order to arrive at a more complex, historically and clinically nuanced model of interaction between socio-cultural contexts and ideas of the psyche.



**Center leader:** Ana Antic, Professor (WSR)

**Host institution:** University of Copenhagen

**Grant:** 39 million DKK

# Center for Chemistry of Clouds – **C3**



The research vision of Center for Chemistry of Clouds is to provide molecular-level understanding of the processes leading to clouds. The center aims to uncover the molecular-level dynamics of formation and chemical change of aerosol particles during their atmospheric lifetime. Furthermore, C3 will provide critical knowledge on how molecules, in particular water, attach to aerosol surfaces.



**Center leader:** Merete Bilde, Professor

**Host institution:** Aarhus University

**Grant:** 60 million DKK

Photo credit: Ditte Thomsen

# Center for Global Mobility Law – **MOBILE**



The picture illustrates the world's airline routes. It also exemplifies how legal rules and restrictions impact global access to air travel and other forms of human mobility. MOBILE examines the foundational relationship between law and mobility to create new understandings of how different legal regimes interact, vary across regions, change over time and concretely shape travel patterns.



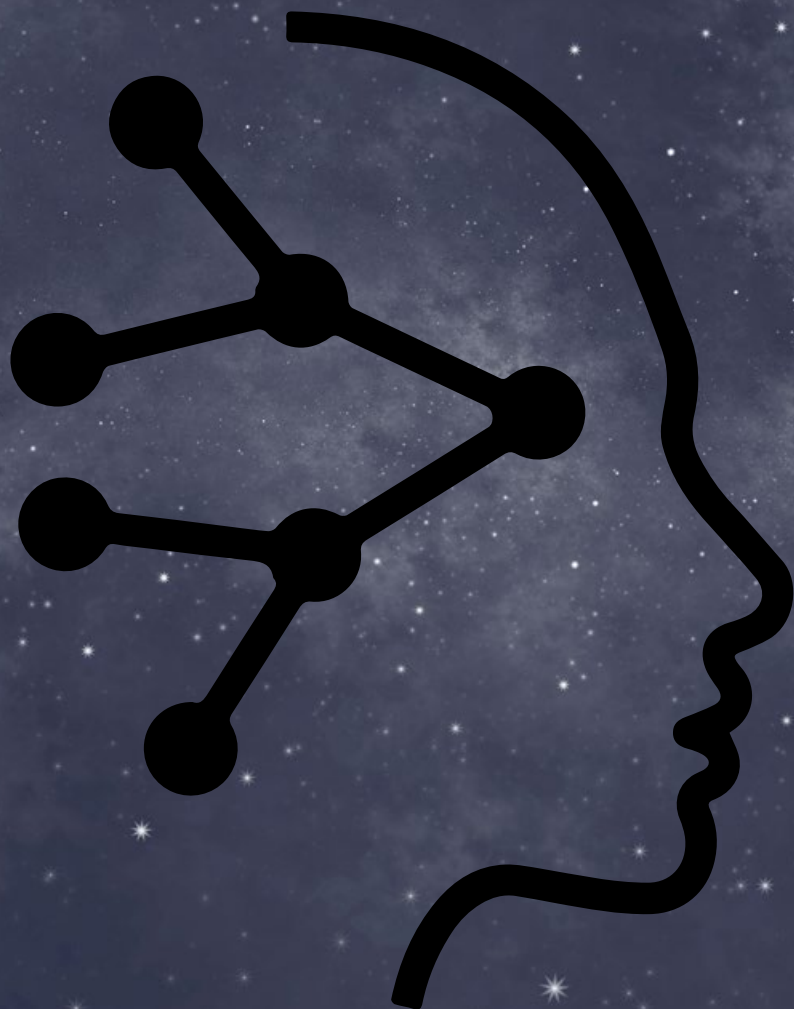
**Center leader:** Thomas Gammeltoft-Hansen, Professor

**Host institution:** University of Copenhagen

**Grant:** 36 million DKK



# Center for Big Data in Finance – **BIGFI**



Center for Big Data in Finance (BIGFI) seeks to generate a new understanding of finance based on the rapid increase in data combined with the revolution in data science and computing power. The center has a unique opportunity to leverage the synergies of combining leading experts on financial markets with leading experts on economic agents using the broadest data and the deepest data available anywhere in the world.

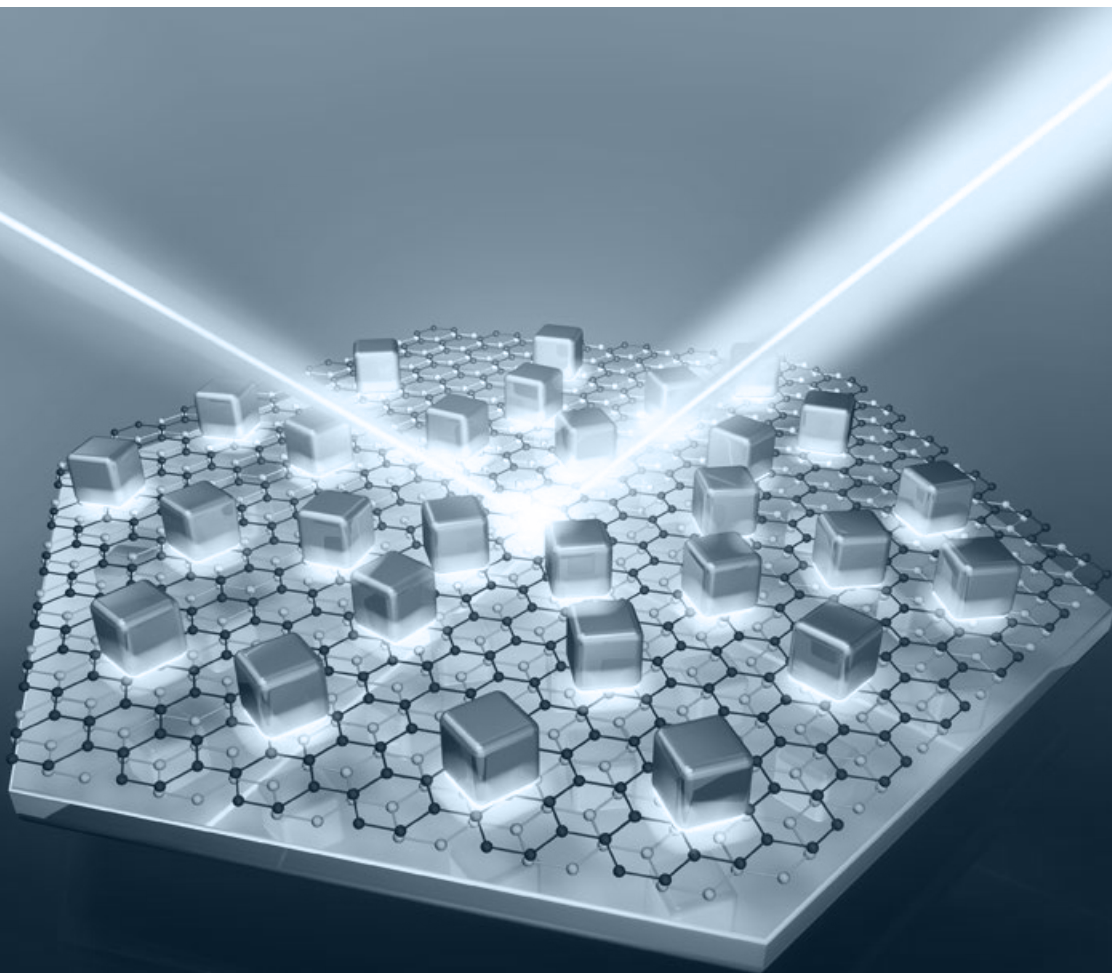


**Center leader:** Lasse Heje Pedersen, Professor

**Host institution:** Copenhagen Business School

**Grant:** 59.4 million DKK

# Center for Polariton-driven Light-Matter Interactions – **POLIMA**



POLIMA will explore and manipulate polaritons in flatland, in engineered meta-surfaces interfacing light-emitting quantum systems or serving as light sources themselves.

Enabled by concerted efforts from fundamental theory, nano- and quantum optics experiments, low-dimensional material synthesis, advanced nanofabrication, and atomic-scale material characterization, POLIMA embraces a curiosity-driven exploration with new paradigms intersecting quantum optics and polaritonic matter.

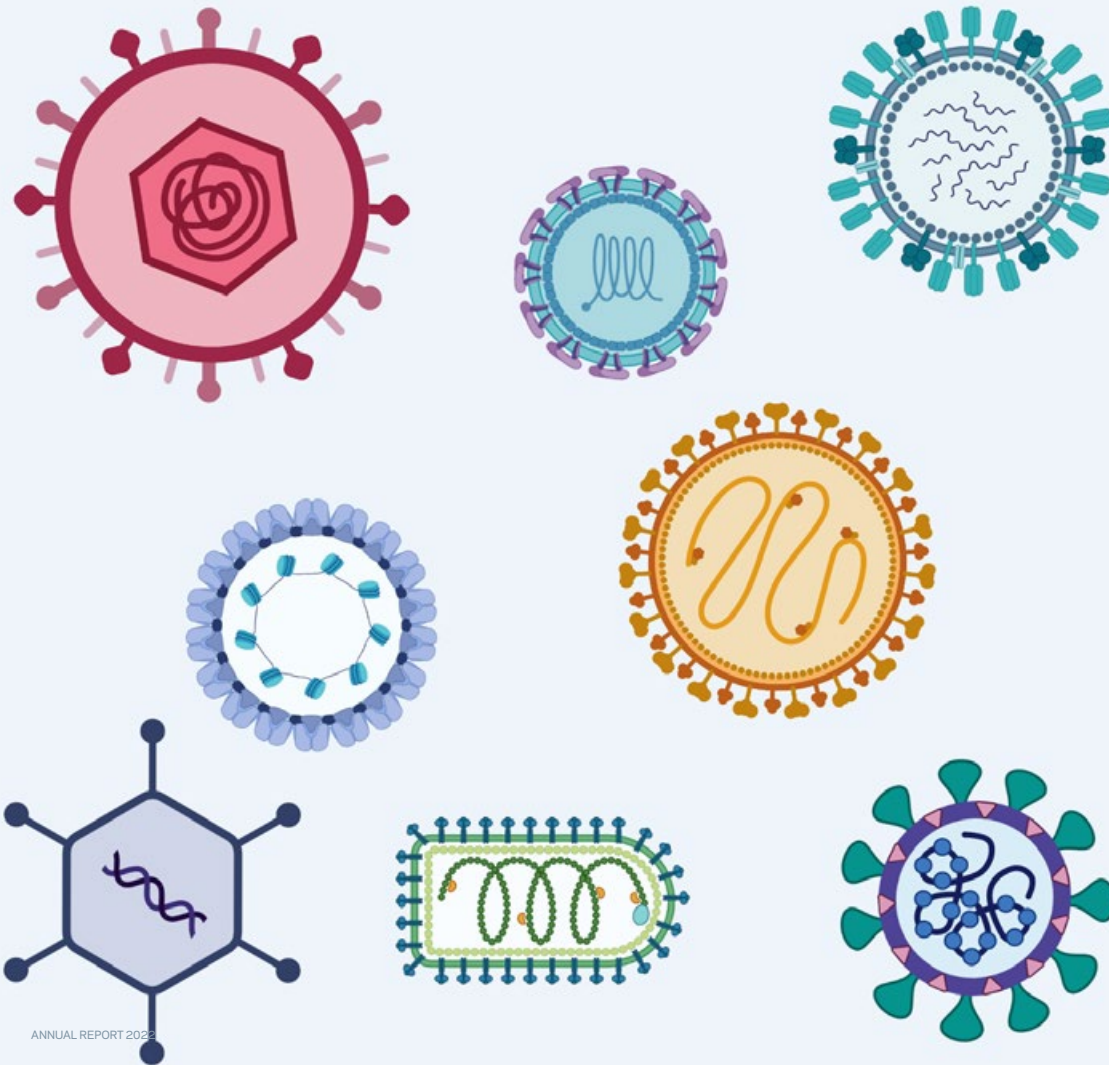


**Center leader:** N. Asger Mortensen, Professor

**Host institution:** University of Southern Denmark

**Grant:** 60 million DKK

# Center for immunology of viral infections – **CiViA**



The goal of CiViA is to understand the cellular and molecular determinants that govern the immune response to virus infections, and to decipher how they impact on the outcome of infections – disease versus resolution. In addition, CiViA will integrate experimental research with science philosophy to challenge the current paradigms in immunology.



**Center leader:** Søren Riis Paludan, Professor

**Host institution:** Aarhus University

**Grant:** 60 million DKK



# Center for Volatile Interactions – **VOLT**



VOLT aims to unravel biological processes producing and consuming volatile organic compounds. Our focus on understudied, volatile-producing and consuming organisms and environments will lead to fundamental understanding on how key interactions between organisms and their environment affect the atmospheric burden of climate-relevant volatiles under current and future climates.



**Center leader:** Riikka Rinnan, Professor

**Host institution:** University of Copenhagen

**Grant:** 60 million DKK



# Center for Interdisciplinary Study of Pandemic Signatures – **PandemiX**



PandemiX will study patterns, dynamics, impacts, and contexts of past and contemporary pandemics. We use mathematical and statistical modeling, bioinformatics, epidemiology, and unique historical and COVID-19 health data. Our interdisciplinary team will study “Signatures” of each pandemic over the last 300-400 years, arriving at a catalogue over Signature features that will inform the response when the next pandemic – Disease X – hits.

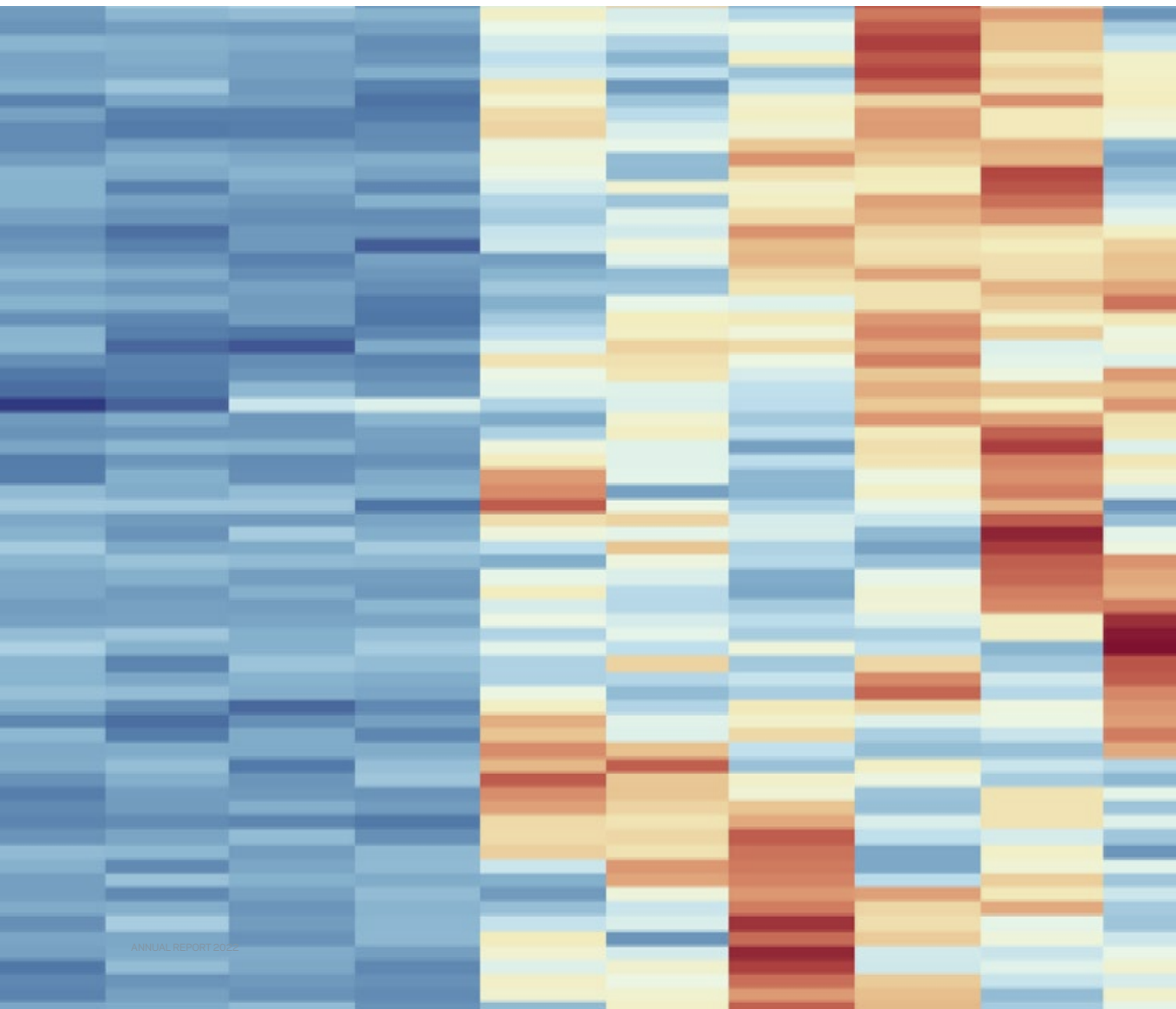


**Center leader:** Lone Simonsen, Professor

**Host institution:** Roskilde University

**Grant:** 47 million DKK

# Center for Gene Expression – **CGEN**



We all know the expression: “It’s in our DNA”, but how is the heritable information in the genes of our DNA decoded? DNA decoding, or Gene Expression, occurs via two main processes, transcription and translation. Using a wide-ranging repertoire of techniques and approaches, CGEN will study these processes in a more integrated manner to obtain a comprehensive genome- and proteome-wide understanding of gene expression.



**Center leader:** Jesper Sveistrup, Professor

**Host institution:** University of Copenhagen

**Grant:** 68.6 million DKK

# Center for Ecological Dynamics in a Novel Biosphere – **ECONOVO**



Human activities are transforming the biosphere, with risks of severe extinctions and massive ecosystem breakdowns. Effective biosphere stewardship is urgently needed, but must deal with rising, but poorly understood ecological novelty. ECONOVO aims to provide ground-breaking insights into emerging novel ecological conditions and how to steer these towards the most positive outcomes possible.



**Center leader:** Jens-Christian Svenning, Professor

**Host institution:** University of Aarhus

**Grant:** 60 million DKK



# GeoGenetics Centre for Ancient Environmental Genomics – **CAEG**



To tackle long-debated questions about past and potential future environmental changes the Centre for Ancient Environmental Genomics will create a state-of-the-art core facility for the next generation of ancient environmental DNA research. It will push the boundaries of reconstructions of past dynamics of complex biological systems, from individual genes and populations to entire ecosystems at unprecedented temporal and spatial scales.



**Center leader:** Eske Willerslev, Professor

**Host institution:** University of Copenhagen

**Grant:** 75 million DKK

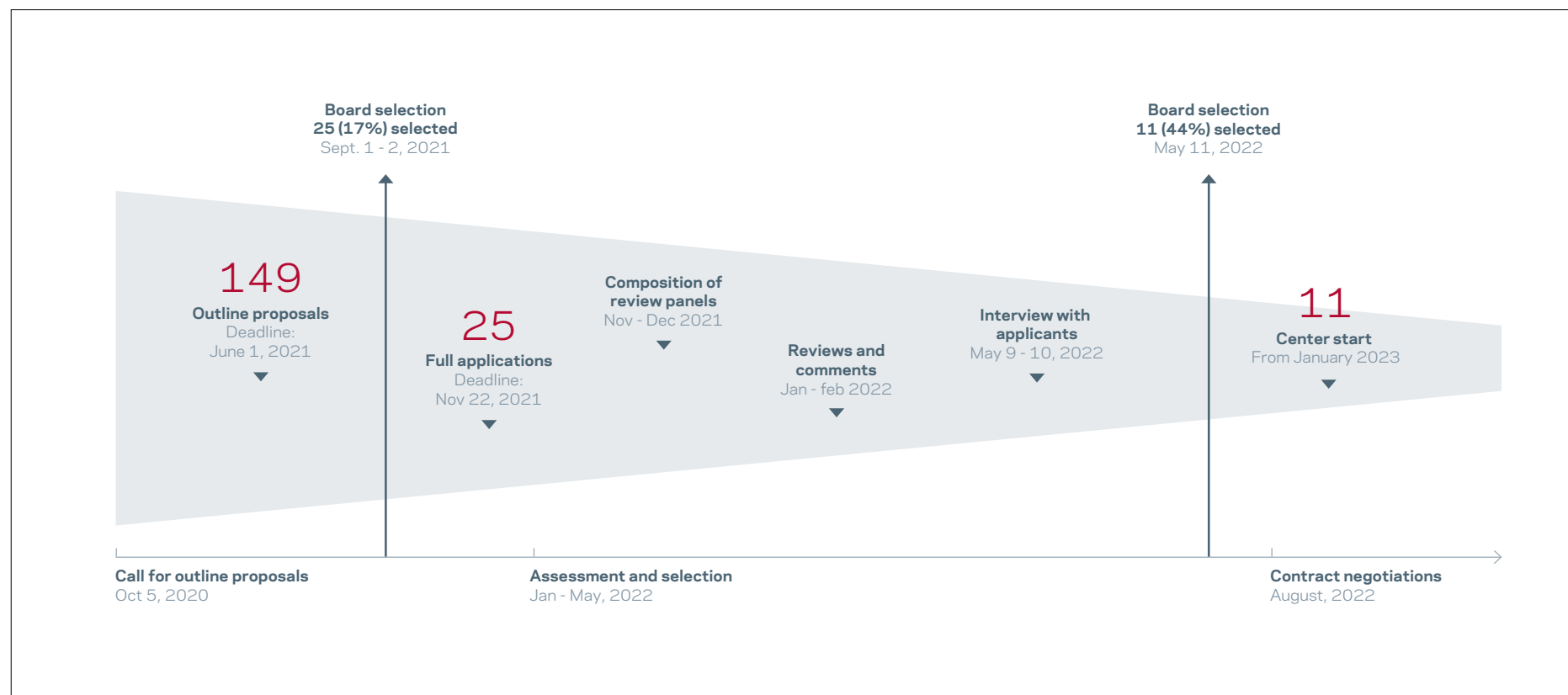


# The 11th application round for Centers of Excellence – statistics and process

## APPLICATION PROCESS

The Danish National Research Foundation's board made its decision regarding the foundation's 11th application round on May 11, 2022.

Prior to the decision came a thorough two-phase application process, starting with the announcement of the call on October 5, 2020, and the deadline for submission of outline proposals on June 1, 2021.



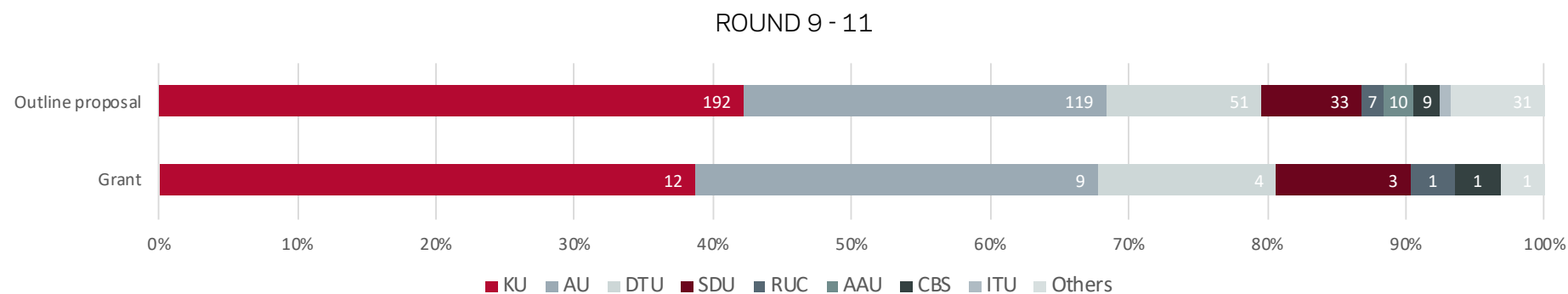
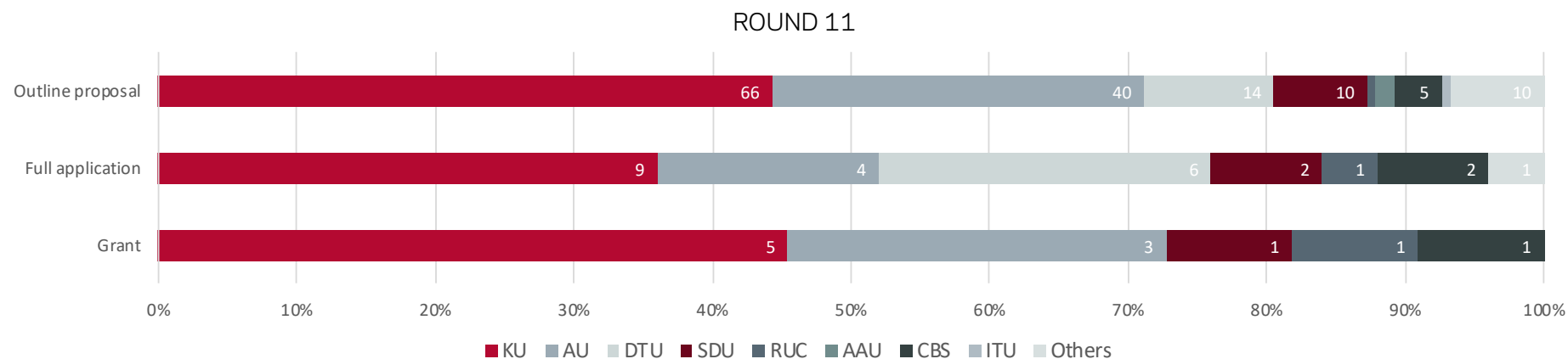
## Outline proposals, full applications and grants distributed on host institutions

The figure states the center's main host institution.

However, several centers have nodes at other institutions.

The foundation always encourages the best researchers to establish the strongest possible research environments at or across Danish research institutions.

The success rate for individual host institutions varies from round to round. An average for the last three rounds, round 9-11, can be seen below for comparison.

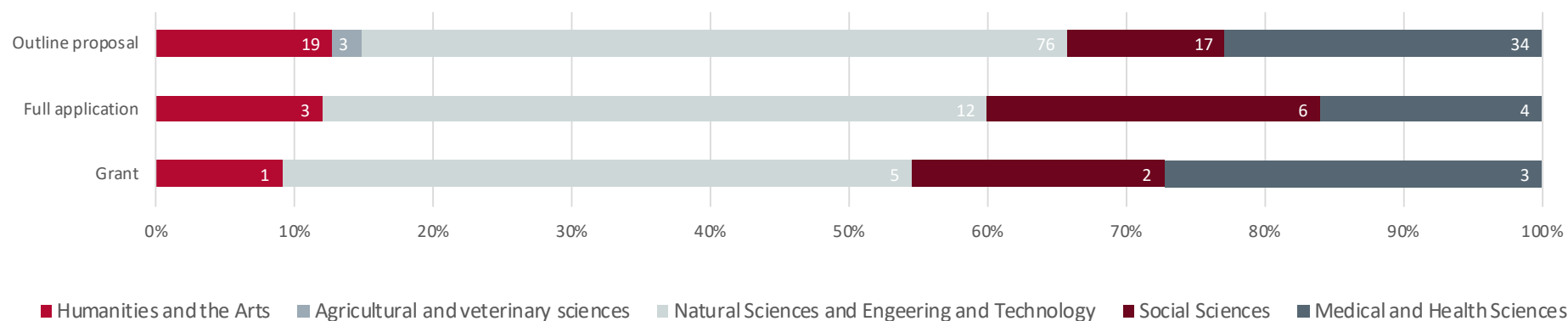


## Outline proposals, full applications and grants distributed on fields of research

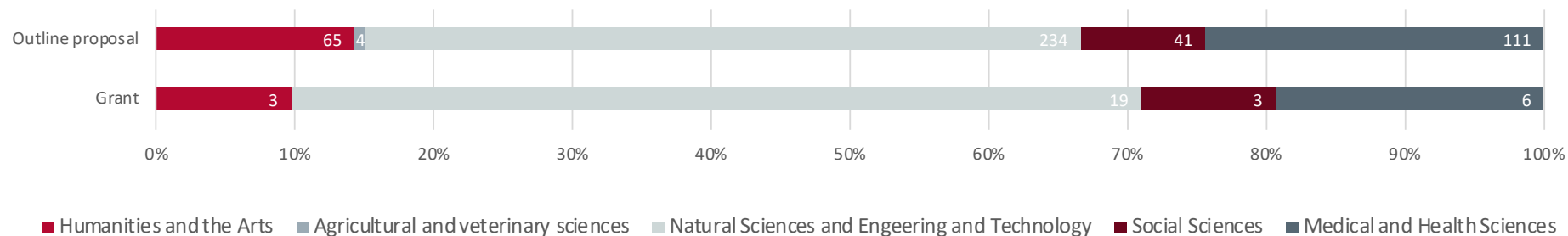
The division into main fields of research is somewhat artificial, since approximately half the centers are interdisciplinary across main fields. Counting interdisciplinarity within the main fields, almost all centers have an interdisciplinary research portfolio.

The success rate for individual fields varies from round to round. An average for the last three rounds, round 9-11, can be seen below for comparison.

ROUND 11

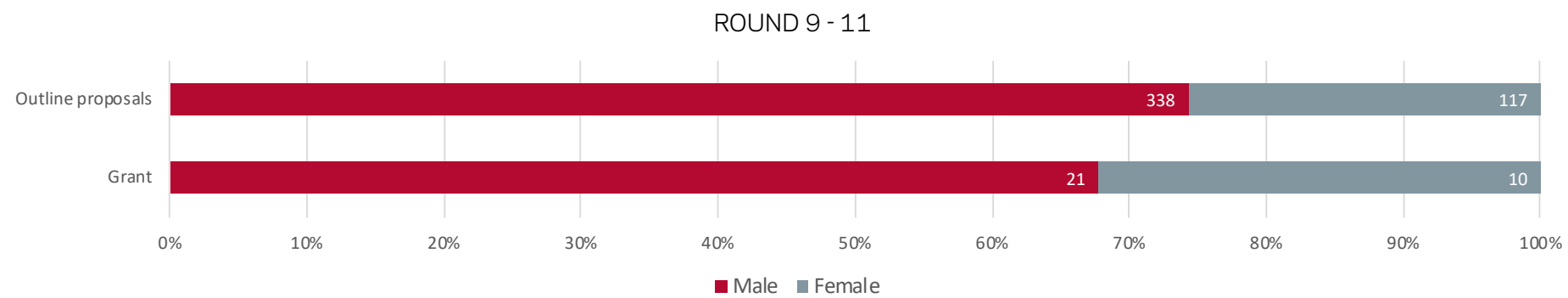
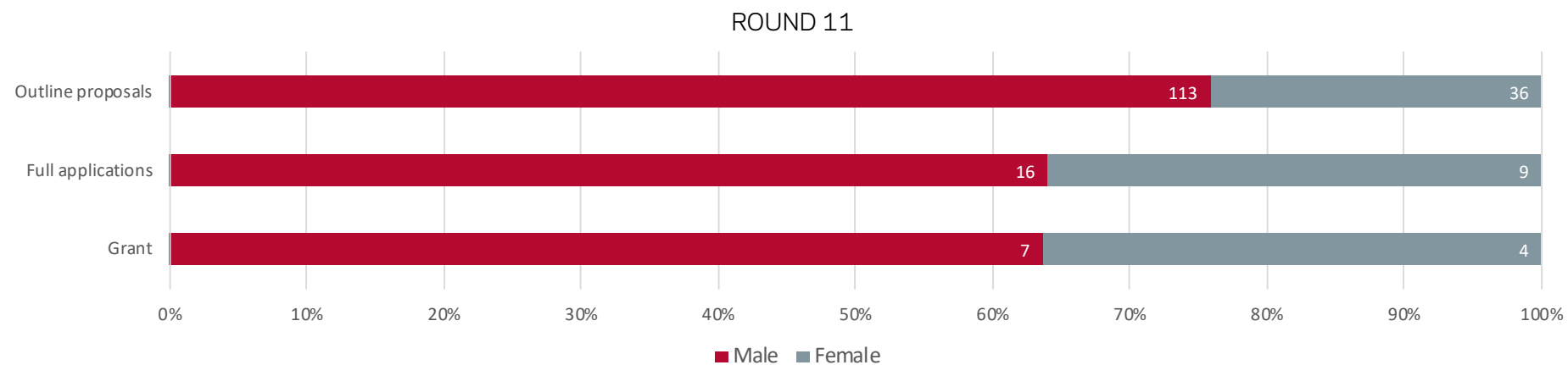


ROUND 9 - 11



## Gender distribution for outline proposals, full applications and grants

The Danish National Research Foundation monitors the ratio of women to men at centers and encourages the centers to aim for gender balance among the staff.



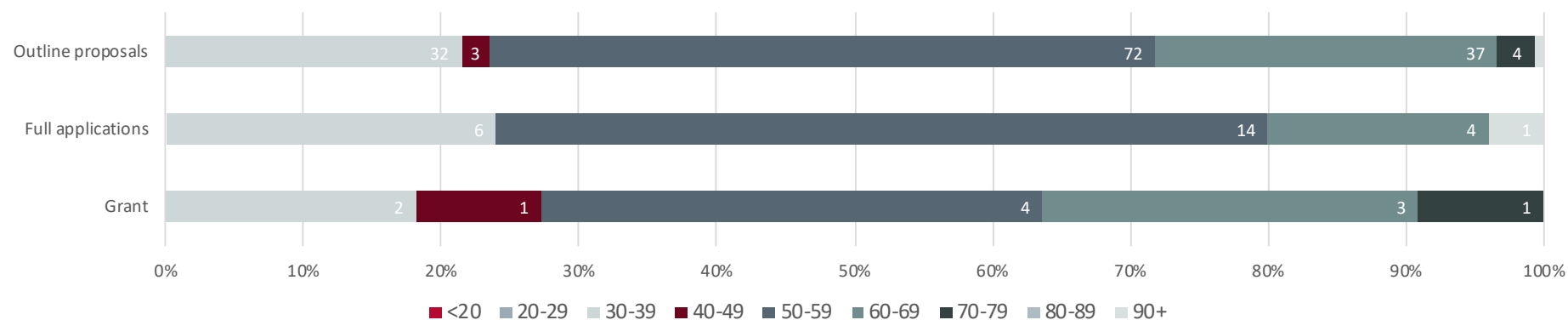


### Distribution of applied amount for outline proposals, full applications and grants

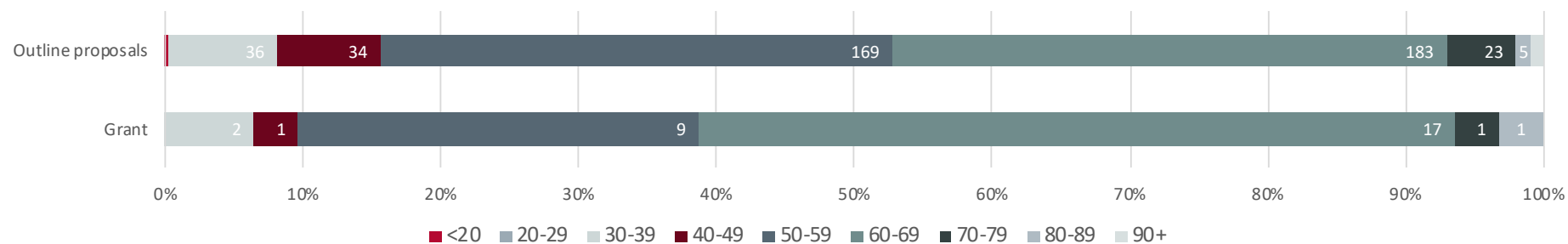
There is no fixed formula for creating a CoE. The centers may differ in size and mode of organization, depending on their subject and scope. Centers of Excellence can consist of one or more research groups that work together in an ambitious and visionary way to solve complex research questions. Some centers become rather large during the grant

period, employing more than 60 people divided into several research teams, while others have fewer than 15 members. The important thing is that the center members share a common idea or vision and have a well-defined framework for cooperation, so that the sum of the center creates synergy in bringing together complementary competencies in a way that surpasses what the individual elements could achieve.

ROUND 11



ROUND 9 - 11



# The Pioneer Center initiative

The establishment of the Pioneer Centers is an ambitious national undertaking initiated by the Ministry of Higher Education and Science and developed in close cooperation (and co-financing) between the Ministry, the Danish National Research Foundation, the Carlsberg Foundation, the Lundbeck Foundation, the Novo Nordisk Foundation, and the Villum Foundation, as well as the universities.

Read more about the Pioneer Center initiative [here](#).



## Pioneer Center for Landscape Research in Sustainable Agricultural Futures - **Land-CRAFT**



Center for Landscape Research  
in Sustainable Agricultural Futures

The overall aim for the Pioneer Center for Landscape Research in Sustainable Agricultural Futures (Land-CRAFT) is to reduce greenhouse gas emissions from the agricultural sector, while restoring the health of managed and adjacent natural ecosystems and allowing for increasing agricultural productivity. Particular focus will be on understanding and mapping carbon and nitrogen balances in agricultural landscapes and the associated emissions of nitrous oxide and leaching of nitrate, the two most important environmental impacts associated with the agricultural nitrogen use.



**Center leader:** Klaus Butterbach-Bahl, Professor

**Host institution:** Aarhus University

**Grant:** 240 million DKK

# Meet the new DNRF Chairs

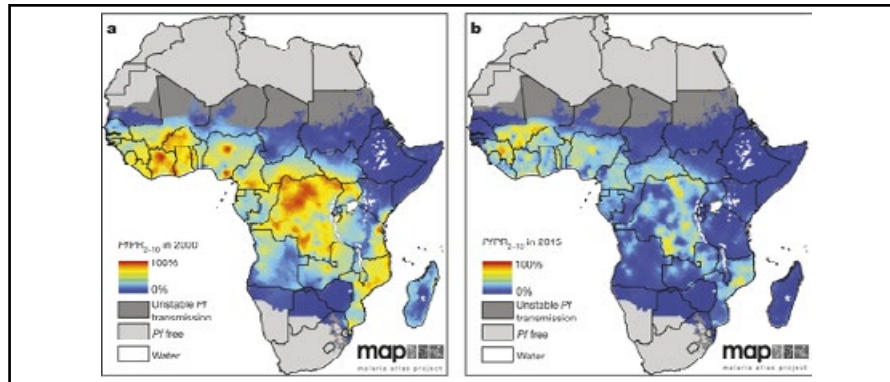
The objective of the DNRF Chair grant is to support and boost the start-up research activities of potential or newly recruited outstanding tenured professors at Danish universities right from the beginning of their employment.

The foundation welcomes applications within and/or across all research areas.

There are three annual calls. In 2023 the deadlines for applications are: March 1, August 1 and November 1.

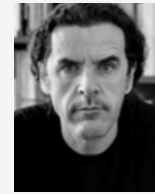
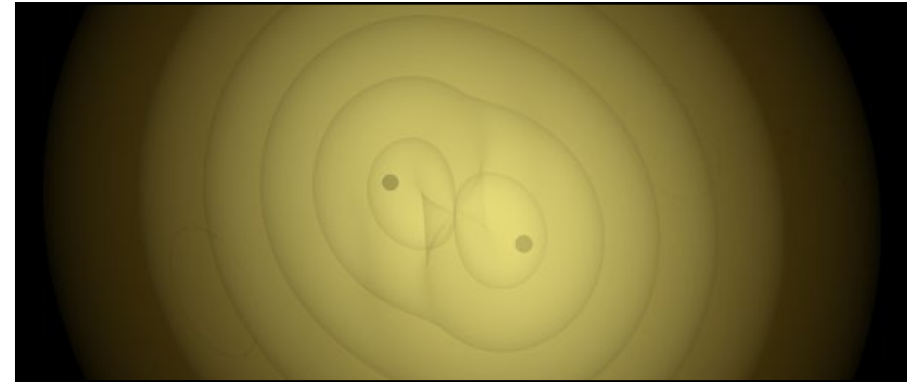


Read more about the DNRF  
Chair program [here](#).



**DNRF Chair:** Samir Bhatt, Professor  
**Period:** 2022 – 2025  
**Host institution:** University of Copenhagen

Infectious disease epidemics and pandemics will continue to happen and likely accelerate in frequency. This program serves to further develop expertise in Denmark on how to model infectious diseases, communicate risk to policy makers, and create tools for wider use. When the next emergency arises, this program will ensure policy makers are better prepared and informed.



**DNRF Chair:** Vitor Cardoso, Professor  
**Period:** 2022 – 2025  
**Host institution:** University of Copenhagen

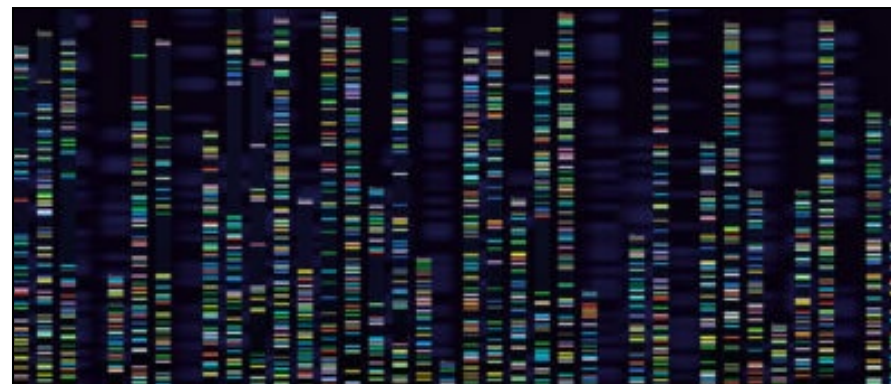
As DNRF Chair, Vitor Cardoso will seed a talented gravity group at the Niels Bohr Institute and build on the institute's expertise to grow a community of leading researchers in gravitational physics and push forward our understanding of gravity.





**DNRF Chair:** Gregory Clark, Professor  
**Period:** 2023 - 2026  
**Host institution:** University of Southern Denmark

Economic historian Greg Clark will develop his innovative techniques analysing and measuring social mobility in the Nordic context, through applying his methods to the Human Capital of the Nordic Countries (HCNC) Database over multiple generations in Denmark and Norway 1790-1940.



**DNRF Chair:** Ruth Loos, Professor  
**Period:** 2022 - 2025  
**Host institution:** University of Copenhagen

Professor Ruth Loos' research focuses on identifying the key genetic and non-genetic determinants of body weight regulation to gain insight into the underlying biology of obesity and to improve prediction, prevention and treatment through personalized strategies. The DNRF Chair award will allow her to build a precision health cohort, with the ultimate aim of personalizing lifestyle recommendations for optimal health.

# Final evaluation 7th round Centers of Excellence: Impressions

Eight Centers of Excellence ended their ten-year journey in 2022. The centers have, to the highest degree, facilitated the integration of different scientific disciplines, which is not a trivial accomplishment. For starters, it involves the development of a common language that can encompass everyone's competencies in a meaningful way. Each center has produced innovations in its research area and respective field of study and has thus left a noticeable mark on its host institution. The younger scientists involved in the centers have proven to be highly competitive when applying for national and international career development grants. The following is a very short summary about the centers and their outcomes.

*“ We are incredibly proud to have again laid the ground for world-class research results within a broad spectrum of topics. The support for basic research in all disciplines is one of the foundation's hallmarks and is well exemplified by the generation of centers that ended in 2022.*

*Professor Jens Kehlet Nørskov, chair of the DNRF*



### Copenhagen Center for Glycomics (CCG)

**Location:** University of Copenhagen  
**Center leader:** Professor Henrik Clausen  
**Total grant:** 103.5 million DKK

The Copenhagen Center for Glycomics developed a suite of unique tools and resources that use genetic approaches to uncovering diseases caused by deficiencies in glycosylation, to dissect the functions and molecular mechanisms of glycosylation, and to discover and exploit therapeutic opportunities.

“The center has brought new strategies to explore glycoproteomes comparable to proteomics and turned genetic engineering and the glycosylation of therapeutics into a kind of ‘Lego building’ with wide options for design, testing and production of improved glycoprotein therapeutics.

Henrik Clausen, Professor



### Centre for Medieval Literature (CML)

**Location:** University of Southern Denmark  
**Center leader:** Professor Lars Boje Mortensen  
**Total grant:** 60.0 million DKK

The Center for Medieval Literature applied a unique combination of book history, languages, and literary history to investigate the larger patterns of medieval literary and intellectual life. Its connective, comparative and multilingual approaches to medieval European literatures will have a lasting impact on national curricula.

“By taking a broad view of European literary languages in the Middle Ages extending across, e.g., Latin, Byzantine Greek, and Arabic, we have been able to contribute the concept of ‘imperial languages,’ a concept that orders linguistic and literary history in a new way. Similarly, a three-part chronology of European literatures has been developed as an alternative to nation-driven periodizations.

Lars Boje Mortensen, Professor



### Center for Dynamic Molecular Interactions (DynaMo)

**Location:** University of Copenhagen  
**Center leader:** Professor Barbara Halkier  
**Total grant:** 81.7 million DKK

The Center for Dynamic Molecular Interactions set out to link cellular processes to organismal biology by studying the interconnectivity of cellular components made of DNA, RNA, proteins and metabolites within an organism. The center has laid an excellent groundwork for the burgeoning field of research showing that metabolites carry extensive regulatory information that shapes an organism's regulator networks.

*“We have reshaped the field's understanding of how metabolites move within an organism and opened entirely new areas of enquiry about how transport specificity is obtained and how transport processes shape metabolite distribution patterns to optimize fitness.*

*Barbara Halkier, Professor*



### Stellar Astrophysics Center (SAC)

**Location:** Aarhus University  
**Center leader:** Professor Jørgen Christensen-Dalsgaard  
**Total grant:** 91.7 million DKK

The Stellar Astrophysics Center maintained Denmark's leading international position in research on stars, pushing the frontiers in helio- and asteroseismology, and established studies of exoplanets, the Milky Way Galaxy, and astrobiology as strong fields of research at Aarhus University.

*“The interaction between asteroseismology and exoplanet studies has proved particularly fruitful at SAC. Analysis of seismic data has provided key information about the properties of central stars in exoplanetary systems, including the age of the star, as a basis for the full characterization of such systems, including their age, and hence for the understanding of how the systems evolve. This synergy is fundamental for the PLATO mission under development by ESA.*

*Jørgen Christensen-Dalsgaard, Professor*





### The Center for International Courts (iCourts)

**Location:** University of Copenhagen  
**Center leader:** Professor Mikael Rask Madsen  
**Total grant:** 70.0 million DKK

The Center for International Courts successfully combined theoretical and empirical elements with the aims of understanding international courts and their societal impact, primarily through how they affect modes of producing laws. Significant results include a novel framework for studying the de facto authority of international courts and the challenges caused by multilateralism.

“iCourts has, from the beginning, sought to push the limits of research and be at the cutting-edge. While our approaches have generally been empirical in nature and based on interdisciplinarity, they center on a set of general ideas of how to transform legal science, notably the subfield known as legal realism.  
 Mikael Rask Madsen, Professor



### The Center for Nanostructured Graphene (CNG):

**Location:** Technical University of Denmark  
**Center leader:** Professor Antti-Pekka Jauho  
**Total grant:** 90.1 million DKK

The Center for Nanostructured Graphene placed Danish research on 2D materials high in international circles. The center established a full infrastructure for research in the synthesis and growth of two-dimensional materials, as well as their characterization, processing into devices, and modelling.

“The center has shown that graphene can indeed be nanostructured so that its fundamental properties change without destroying its properties. We have proved that our theoretical predictions can be realized in experimental systems, and that has opened up several new directions of research.

Antti-Pekka Jauho, Professor





### The Center for Permafrost (CENPERM)

**Location:** University of Copenhagen  
**Center leader:** Professor Bo Elberling  
**Total grant:** 99.7 million DKK

The Center for Permafrost made significant contributions to quantifying and understanding the carbon and nitrogen cycles linked to climate change, with a focus on plants and permafrost thawing. This was done by successfully combining field-based experimental work, scaling from plot to regional levels, and modelling to predict future feedback mechanisms relevant for decision makers.

*“We have contributed to a better understanding of ecosystem functioning of the ice-free part of Greenland, with global implications. This includes implications relevant for people living in the Arctic, but also for the understanding of the global climate system.”*

*Bo Elberling, Professor*



### The Center for Financial Frictions (FRIC)

**Location:** Copenhagen Business School  
**Center leader:** Professor David Lando  
**Total grant:** 80.0 million DKK

The Center for Financial Frictions was established with the aim of examining the impact of financial frictions on several issues in finance. The research made a substantial impact on the academic literature and on market practice through a wealth of new insights into risk-return trade-offs, bond market liquidity, the impact of leverage constraints, and capital regulation.

*“Answering pressing problems that are of interest to the global finance community is a significant accomplishment, which has required new theoretical models and extensive empirical work. Several of our papers are now standard references in the areas they study, and they inform decision-makers about banks, central banks, asset management, regulation, and policy.”*

*David Lando, Professor*

# The DNRF Photo Competition

# The DNRF Photo Competition

Photos have the ability to uncover the world of science in a surprising and inviting way, by revealing its beauty and fascinating appeal. The DNRF would like to share with a broader audience how, each day, scientific discovery advances our knowledge of ourselves and the world we live in.

We do this by telling the stories of scientific advances or discoveries with a photo as a visual entry point. To this end, each year the foundation launches a photo competition based on the photograph's potential as documentation and communication of scientific research. In 2022, the competition invited the research community at large to submit photos.

## **The selection criteria were as follows:**

- Degree to which the photo evokes emotions in the observer
- Degree to which the photo works as a visual entry point to the story behind the specific research result
- Aesthetic quality of the photo

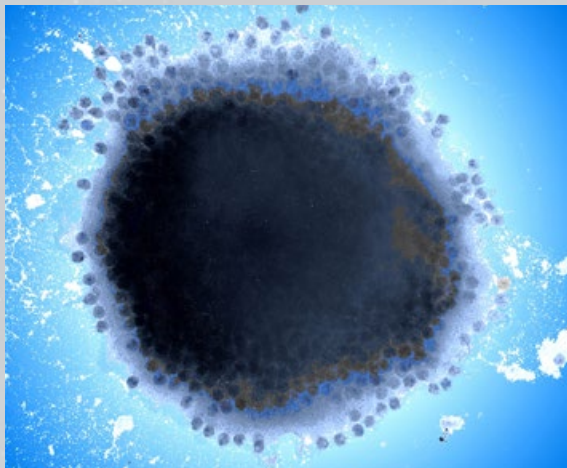
The selection panel, consisting of Christine Buhl Andersen, Chair of the New Carlsberg Foundation; Louise Wolthers, Research manager /curator at the Hasselblad Foundation; and Minik Rosing, Professor at GLOBE Institute, member of the DNRF board and member of the board of the Louisiana Museum of Modern Art, — chose the following photographs for first, second, and third prize:



**First prize:**  
Perseverance

**Judges**

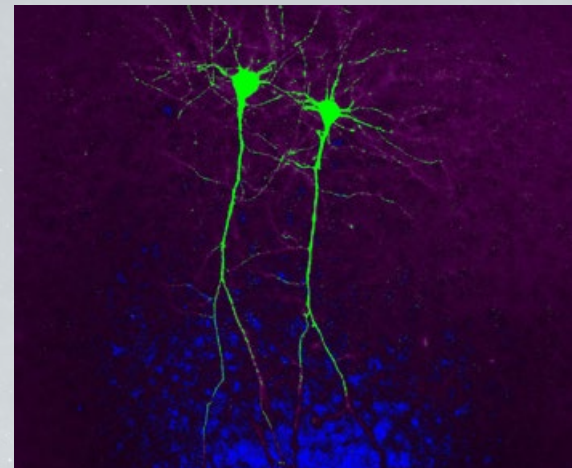
The image creates compassion and indignation about the debilitating consequences of global inequality in relation to medical treatment, which privileged people consider natural but to which many people do not have access. The picture has a fine aesthetic quality in the tradition of social documentary photography. The rug symbolizes caretaking and helps to establish materiality in the motif. The mask is a time marker.



**Second prize:**  
*Untitled*

**Judges**

At first glance, the picture illustrates an explosion that hurls infection from a dying bacterium. The picture communicates the research method, but at the same time, it has a delicate aesthetic watercolor tone.



**Third prize:**  
It Takes Two to Tango

**Judges**

The picture is well composed and evokes positive emotions as if the newly medicated neurons get into a dance. One senses a slight trembling in the motion.





## First prize Perseverance

“ This photo illustrates how the global diabetes epidemic affects human lives on the ground. Bà Son, a 70-year-old rice farmer, is a participant in our collaborative Danish-Vietnamese research project on type II diabetes in rural communities of northern Vietnam. The photo was taken by researcher and physician Dr Vũ Thị Kim Dung a few days after Bà Son had her right leg amputated due to diabetes complications. As Covid-19 was still raging at the time, Bà Son is wearing a facemask. She perseveres.

### Photo

Dung Vũ, Lecturer at Thái Bình University of Medicine and Pharmacy; VALID research team member & Tine Gammeltoft, Professor at the Department of Anthropology, University of Copenhagen; VALID Principal Investigator







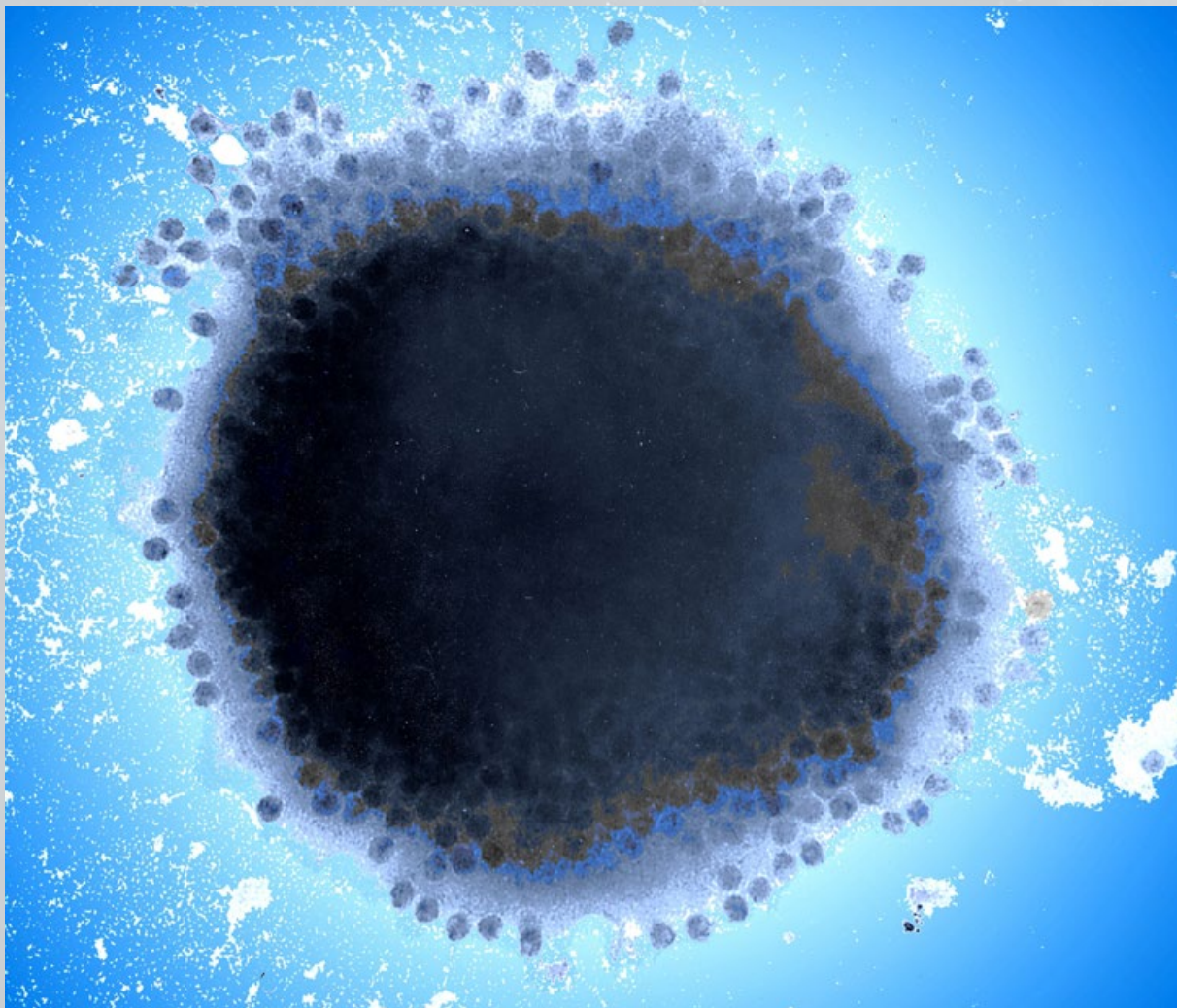
## Second prize

### *Untitled*

“ Just like any other type of organism, bacteria are suffering from viral infections. When a virus infects a bacterium, it injects its DNA into the host cell and the viral DNA then hijacks the metabolic machinery of the cell. During the infection, new viral particles are produced inside the cell, and in the end, the cell bursts and new viruses are released to the environment. The photo shows a transmission electron micrograph of a marine bacterium at the moment when the cell is killed and cell debris and hundreds of viral particles are released.

#### Photo

Mathias Middelboe, Professor, DNRF Center for Hadal Research, University of Copenhagen





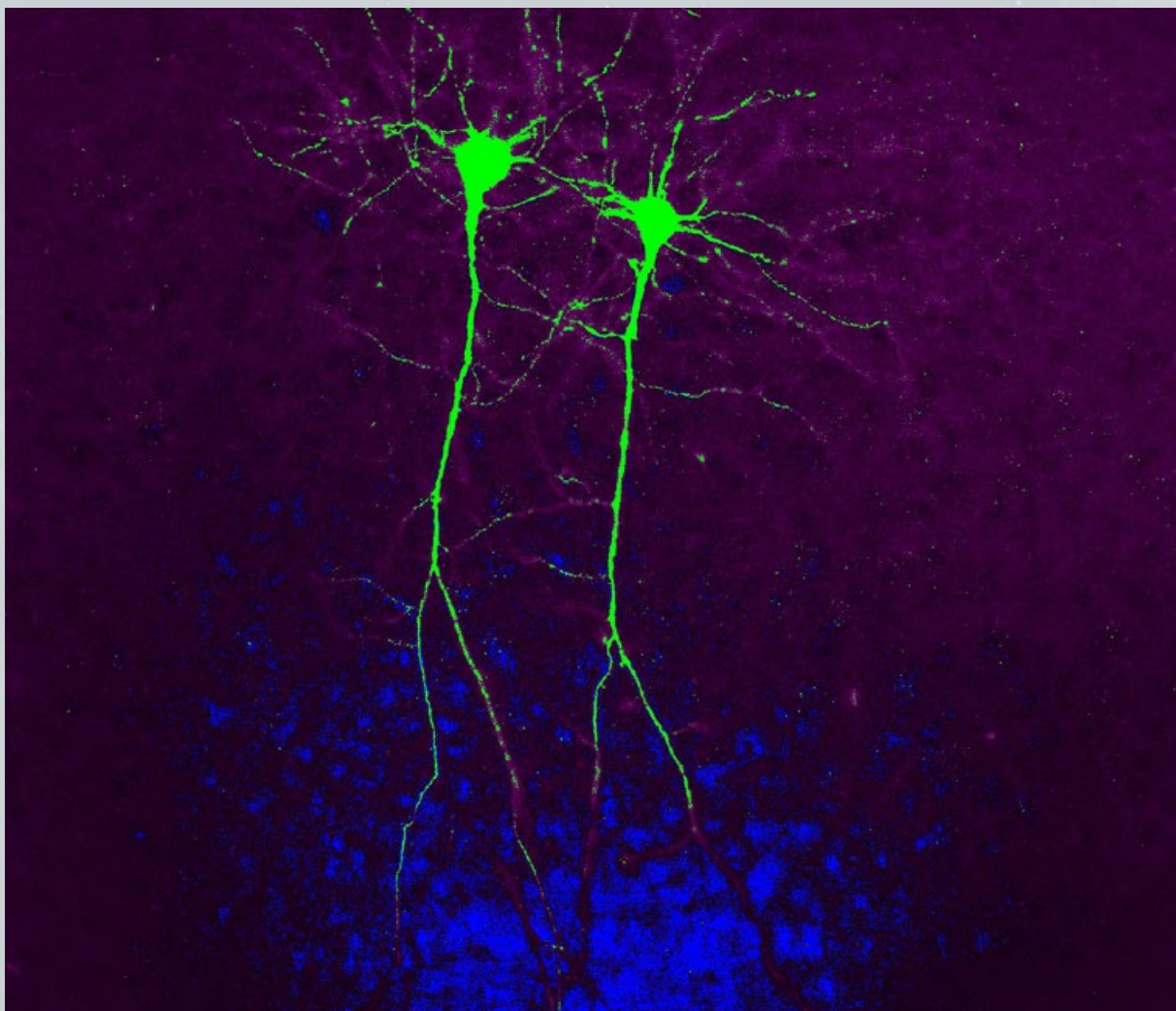
### Third prize

#### It Takes Two to Tango

“ At first, this picture shows a skinny couple shaking their legs on a dance floor. It generates an immediate romantic vibe as they are in focus in a dark-lit corner of the room. Such beautiful poetry! However, this image actually shows two long-range projection neurons located in one corner of the mouse brain region, the sensory cortex. They express green fluorescence after a drug injection, indicating their active role in a specific behavior. The resemblance of cell-body and dendrites to an actual human face and limbs and their location in the tiny corner are strikingly marvelous!

#### Photo

Meet Jariwala, Postdoc, Neuroscience, BRIC,  
University of Copenhagen





# Reports

- Ongoing activities
- The board
- Statement by management on the annual report



# Ongoing activities

## CENTERS OF EXCELLENCE ESTABLISHED IN 2012

### Centre for Medieval Literature (CML)

**Location:** University of Southern Denmark

**Center leader:** Professor Lars Boje Mortensen

**Total grant:** 60.0 million DKK



### Center for Dynamic Molecular Interactions (DynaMo)

**Location:** University of Copenhagen

**Center leader:** Professor Barbara Halkier

**Total grant:** 81.7 million DKK



### Center for Permafrost Dynamics in Greenland (CENPERM)

**Location:** University of Copenhagen

**Center leader:** Professor Bo Elberling

**Total grant:** 99.7 million DKK



### Center for Quantum Devices (QDev)

**Location:** University of Copenhagen

**Center leader:** Professor Charles Marcus

**Total grant:** 111.3 million DKK



### Center for Financial Frictions (FRIC)

**Location:** Copenhagen Business School

**Center leader:** Professor David Lando

**Total grant:** 80.0 million DKK



### Center for Nanostructured Graphene (CNG)

**Location:** Technical University of Denmark

**Center leader:** Professor Antti-Pekka Jauho

**Total grant:** 90.1 million DKK



### Center for International Courts (iCourts)

**Location:** University of Copenhagen

**Center leader:** Professor Mikael Rask Madsen

**Total grant:** 70.0 million DKK



### Stellar Astrophysics Centre (SAC)

**Location:** Aarhus University

**Center leader:** Professor Jørgen Christensen-Dalsgaard

**Total grant:** 91.7 million DKK



### Copenhagen Center for Glycomics (CCG)

**Location:** University of Copenhagen

**Center leader:** Professor Henrik Clausen

**Total grant:** 103.5 million DKK



## CENTERS OF EXCELLENCE ESTABLISHED IN 2015

**Center for Chromosome Stability (CCS)****Location:** University of Copenhagen**Center leader:** Professor Ian D. Hickson**Total grant:** 110.0 million DKK**Center for Stem Cell Decision Making (StemPhys)****Location:** University of Copenhagen**Leader:** Professor Joshua Brickman**Total grant:** 54.9 million DKK**Center for Music in the Brain (MIB)****Location:** Aarhus University**Center leader:** Professor Peter Vuust**Total grant:** 98.2 million DKK**Centre for Carbon Dioxide Activation (CADIAC)****Location:** Aarhus University**Center leader:** Professor Troels Skrydstrup**Total grant:** 85.0 million DKK**Center for Urban Network Evolutions (UrbNet)****Location:** Aarhus University**Center leader:** Professor Rubina Raja**Total grant:** 105.0 million DKK**Center for Bacterial Stress Response and Persistence (BASP)****Location:** University of Copenhagen**Total grant:** 34.8 million DKK**Center for Neuroplasticity and Pain (CNAP)****Location:** Aalborg University**Center leader:** Professor Thomas Graven-Nielsen**Total grant:** 85.2 million DKK**Center for Intelligent Oral Drug Delivery and Sensing using Microcontainers and Nanomechanics (IDUN)****Location:** Technical University of Denmark**Center leader:** Professor Anja Boisen**Total grant:** 96.0 million DKK**Center for Silicon Photonics for Optical Communications (SPOC)****Location:** Technical University of Denmark**Center leader:** Professor Leif Katsuo Oxenløwe**Total grant:** 100.6 million DKK**Center for Hyperpolarization in Magnetic Resonance (HYPERMAG)****Location:** Technical University of Denmark**Center leader:** Professor Jan Henrik Ardenkjær-Larsen**Total grant:** 55.0 million DKK**Center for Autophagy, Recycling and Disease (CARD)****Location:** The Danish Cancer Society**Center leader:** Professor Marja Jäätelä**Total grant:** 95.4 million DKK**Center for Personalized Medicine Managing Infectious Complications in Immune Deficiency (PERSIMUNE)****Location:** Rigshospitalet**Center leader:** Professor Jens Lundgren**Total grant:** 100.1 million DKK

## NIELS BOHR PROFESSORSHIPS ESTABLISHED IN 2016/2017

### Professor Rita Felski, University of Virginia

**Location:** University of Southern Denmark

**Total grant:** 27.3 million DKK



### Professor Matthew Collins, The University of York

**Location:** University of Copenhagen

**Total grant:** 30.9 million DKK



### Professor John McGrath, University of Queensland

**Location:** School of Business and Social Science, Aarhus University

**Total grant:** 29.9 million DKK



### Professor Thomas Pohl, Max Planck Institute for the Physics of Complex Systems

**Location:** Aarhus University

**Total grant:** 25.2 million DKK



### Professor Morten Bennedsen, INSEAD

**Location:** University of Copenhagen

**Total grant:** 29.9 million DKK



### Professor Enrico Ramirez-Ruiz, University of California

**Location:** University of Copenhagen

**Total grant:** 21.6 million DKK



## CENTERS OF EXCELLENCE ESTABLISHED IN 2017/2018

### Center for Proteins in Memory (PROMEMO)

**Location:** Aarhus University

**Leader:** Professor Anders Nykjær

**Total grant:** 62.0 million DKK



### Center for Economic Behavior and Inequality (CEBI)

**Location:** University of Copenhagen

**Leader:** Professor Claus Thustrup Kreiner

**Total grant:** 57.0 million DKK



### Center for Cellular Signal Patterns (CeIPAT)

**Location:** Aarhus University

**Leader:** Professor Jørgen Kjems

**Total grant:** 61.0 million DKK



### Center for Electromicrobiology (CEM)

**Location:** Aarhus University

**Leader:** Professor Lars Peter Nielsen

**Total grant:** 56.0 million DKK



### Center for Microbial Secondary Metabolites (CeMiSt)

**Location:** Technical University of Denmark

**Leader:** Professor Lone Gram

**Total grant:** 58.0 million DKK



**Center for Privacy Studies (PRIVACY)**

**Location:** University of Copenhagen

**Leader:** Professor Mette Birkedal Bruun

**Total grant:** 50.0 million DKK

**Center for Hybrid Quantum Networks (Hy-Q)**

**Location:** University of Copenhagen

**Leader:** Professor Peter Lodahl

**Total grant:** 62.0 million DKK

**The Cosmic Dawn Centre (DAWN)**

**Location:** University of Copenhagen

**Leader:** Professor Sune Toft

**Total grant:** 66.2 million DKK

**Center for Functional Genomics and Tissue Plasticity (ATLAS)**

**Location:** University of Southern Denmark

**Leader:** Professor Susanne Mandrup

**Total grant:** 65.0 million DKK

**Center for Macroscopic Quantum States (BigQ)**

**Location:** Technical University of Denmark

**Leader:** Professor Ulrik Lund Andersen

**Total grant:** 63.0 million DKK

**National Science Foundation (NSF)**

(1.6 million DKK, which is included in the above mentioned center grants).

## CENTERS OF EXCELLENCE ESTABLISHED IN 2020/2021

**Center for Evolutionary Hologenomics (CEH)**

**Location:** University of Copenhagen

**Leader:** Professor Marcus Thomas Pius Gilbert

**Total grant:** 67.7 million DKK

**Center for the Experimental-Philosophical Study of Discrimination (CEDISC)**

**Location:** Aarhus University

**Leader:** Professor Kasper Lippert-Rasmussen

**Total grant:** 62.6 million DKK

**Danish center for Hadal research (HADAL)**

**Location:** University of Southern Denmark

**Leader:** Professor Ronnie Nøhr Glud

**Total grant:** 54.6 million DKK

**Center for Visualizing Catalytic Processes (VISION)**

**Location:** Technical University of Denmark

**Leader:** Professor Stig Helveg

**Total grant:** 85.8 million DKK

**Center for Nanophotonics (NanoPhoton)**

**Location:** Technical University of Denmark

**Leader:** Professor Jesper Mørk

**Total grant:** 62.9 million DKK

**Center for Molecular Prediction of Inflammatory Bowel Disease (PREDICT)**

**Location:** Aalborg University

**Leader:** Professor Tine Jess

**Total grant:** 68.8 million DKK





**Center for High Entropy Alloys Catalysis (CHEAC)****Location:** Technical University of Denmark**Leader:** Professor Jan Rossmeisl**Total grant:** 61.4 million DKK**Center for Interstellar Catalysis (InterCat)****Location:** University of Copenhagen**Leader:** Professor Liv Hornekær**Total grant:** 67.4 million DKK**Copenhagen Center for Geometry and Topology (GeoTop)****Location:** University of Copenhagen**Leader:** Professor Nathalie Wahl**Total grant:** 60.5 million DKK**Center for Complex Quantum Systems (CCQ)****Location:** Aarhus University**Leader:** Professor Thomas Pohl**Total grant:** 66.6 million DKK**DNFR CHAIRS ESTABLISHED IN 2020-2022****Professor Jesper Svejstrup****Location:** University of Copenhagen**Total grant:** 15.0 million DKK**Professor Morten Ørregaard Nielsen****Location:** Aarhus University**Total grant:** 7.1 million DKK**Professor Steffan Persson****Location:** University of Copenhagen**Total grant:** 8.0 million DKK**Professor Peter Jørgensen****Location:** Aarhus University**Total grant:** 7.9 million DKK**Professor Vivek Shende****Location:** University of Southern Denmark**Total grant:** 8.0 million DKK**Professor Anders Johansen****Location:** University of Copenhagen**Total grant:** 8.5 million DKK**Professor Samir Bhatt****Location:** University of Copenhagen**Total grant:** 6.8 million DKK**Professor Ruth Loss****Location:** University of Copenhagen**Total grant:** 8.0 million DKK**Professor Vitor Cardoso****Location:** University of Copenhagen**Total grant:** 9.8 million DKK**Professor Gregory Clark****Location:** University of Southern Denmark**Total grant:** 10.0 million DKK

## PIONEER CENTERS ESTABLISHED IN 2021/2022

**Pioneer Center for Artificial Intelligence****Location:** University of Copenhagen**Leader:** Professor Serge Belongie**Total grant:** 144.0 million DKK**Pioneer Center for Landscape Research in Sustainable Agricultural Futures****Location:** Aarhus University**Leader:** Professor Klaus Butterbach-Bahl**Total grant:** 70.0 million DKK

## CENTERS OF EXCELLENCE ESTABLISHED IN 2022

**Center for Polariton-driven light-matter (POLIMA)****Location:** University of Southern Denmark**Leader:** Professor N. Asger Mortensen**Total grant:** 60.0 million DKK**Center for Gene Expression (CGEN)****Location:** University of Copenhagen**Leader:** Professor Jesper Svejstrup**Total grant:** 68.6 million DKK**Center for Big Data in Finance (BIGFI)****Location:** Copenhagen Business School**Leader:** Professor Lasse Heje Pedersen**Total grant:** 59.4 million DKK**Center for Global Mobility Law (MOBILE)****Location:** University of Copenhagen**Leader:** Professor Thomas Gammeltoft-Hansen**Total grant:** 36.0 million DKK**Centre for Culture and the Mind (CULTMIND)****Location:** University of Copenhagen**Leader:** Professor with special responsibilities Ana Antic**Total grant:** 39.0 million DKK**Center for Ecological Dynamics in a Novel Biosphere (ECONOVO)****Location:** Aarhus University**Leader:** Professor Jens-Christian Svenning**Total grant:** 60.0 million DKKCOURSE ACTIVITIES FOR CENTER LEADERS/  
OUTREACH PROGRAM FOR CENTERS**Total grant:** 11.2 million DKK

# The board

In 2022, the board conducted four board meetings and was represented at 30 follow-up meetings with the grant holders. The composition of the board March 2023 was as follows:



**Jens Kehlet Nørskov (Chair)**

Professor, Technical University of Denmark

Appointed by the Minister for Higher Education and Science (01.01.19-31.12.24)



**Janet M. Thornton**

Senior Scientist and Director Emeritus, European Molecular Biology

Nominated by Danish Academy of Technical Sciences (01.12.21-30.11.25)



**Sirpa Jalkanen**

Professor, University of Turku

Nominated by the Independent Research Fund Denmark (01.12.21-30.11.25)



**Christian S. Jensen (Vice chair)**

Professor, Aalborg University

Appointed by the Minister for Higher Education and Science (01.12.21-30.11.25)



**Minik Thorleif Rosing**

Professor, Globe Institut, University of Copenhagen

Nominated by the Joint Committee of Directors at the Governmental Research Institutes (01.01.16-31.12.23)



**Tine Brink Henriksen**

Professor, Aarhus University

Nominated by the Independent Research Fund Denmark (01.12.21-30.11.25)



**Anne Scott Sørensen**

Professor, University of Southern Denmark

Nominated by the Independent Research Fund Denmark (01.01.16-31.12.23)



**Morten Overgaard Ravn**

Professor, Department of Economics, University College London

Nominated by Universities Denmark (01.01.16-31.12.23)



**Vigdis Broch-Due**

Professor, University of Bergen

Nominated by the Royal Danish Academy of Sciences and Letters (01.01.20-31.12.23)

# Statement by management on the annual report

The board and the CEO have today considered and approved the annual report of the Danish National Research Foundation for the financial year 2022.

The annual report is presented in accordance with the Consolidated Act on the Danish National Research Foundation, the Danish Executive Order on the Administration of the Funds of the Danish National Research Foundation, the Royal Decree on the Charter of the Danish National Research Foundation and the provisions of the Danish Financial Statements Act with the adjustments resulting from the special nature of the Danish National Research Foundation.

In our opinion, the annual accounts give a true and fair view of the foundation's financial position at December 31, 2022 and of the results

of its operations for the financial year January 1 to December 31, 2022. In addition, we believe that the management commentary contains a fair review of the affairs and conditions referred to therein.

Finally, it is our opinion that the established administrative procedures and internal controls covered by the financial statements comply with the appropriations granted, statutes, other regulations, agreements and usual practice, and that sound financial management is exercised in the administration of the funds and activities covered by the financial statements.

Copenhagen, March 16, 2023.

---

*Søren-Peter Olesen (CEO)*

## Board members:

---

Jens Kehlet Nørskov (Chair)

---

Christian S. Jensen (Vice Chair)

---

Anne Scott Sørensen

---

Janet M. Thornton

---

Minik Thorleif Rosing

---

Morten Overgaard Ravn

---

Sirpa Jalkanen

---

Tine Brink Henriksen

---

Vigdis Broch-Due



# Financial reports

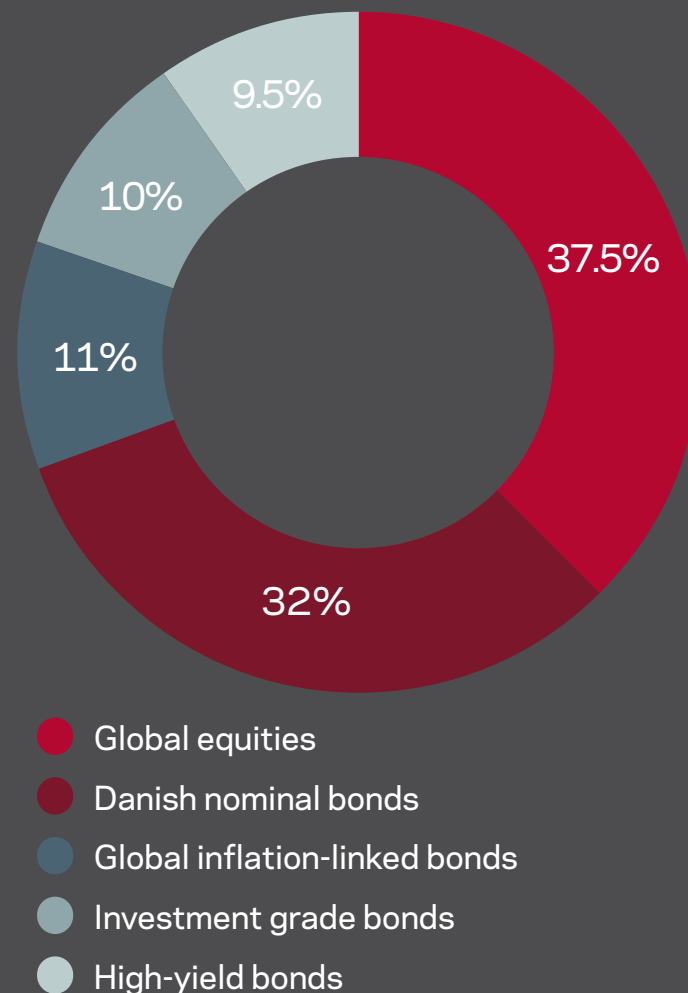
- Total assets and return on investment
- Independent auditor's report
- Accounting policies
- Income statement  
January 1 - December 31
- Balance sheet December 31
- Statement of changes  
in Net Capital for 2022
- Notes

# Total assets and return on investment

A significant increase in inflation during 2022 led to rising interest rates, which, combined with the risk of an economic downturn, resulted in a sharp decline in both bond and equity prices, causing a negative return on investments in 2022. In 2022, the foundation realized a return on investment of minus 14.2%; total return on investment was minus 856 million DKK. Broken down into asset classes, return on equities amounted to minus 372 million DKK, while the return on the fixed income portfolio was negative, with a loss of 484 million DKK.

Net capital the end of 2022 was 4,659 million DKK, compared to net capital of 5,903 million DKK at the end of 2021. The foundation distributed 371 million DKK to its grant holders in 2022, which is lower than the goal of an average distribution level in the DNRF act of 532 million DKK (in 2022 prices). Administrative expenses, including depreciation, were 12.8 million DKK in 2022.

The strategic asset allocation has been unchanged in 2022 and is shown in the figure below.



## Total return

Calculated as a time-weighted return, the total return on investment in 2022 was minus 14.2%, which was lower than the benchmark return of minus 14.1%. The primary reason for the underperformance is the lower than benchmark return from the Danish nominal bond and the European corporate bond portfolio.

From a five-year perspective, covering the period 2018 to 2022, the foundation's annual return of 1.1% was a bit higher than the annual benchmark return of 0.9%. The return in 2022 on the different asset types is presented in the table. Comments on the 2022 return for the different asset types are below.

## Return on equities

The foundation's equity portfolio consists of a combination of equities in developed countries and emerging markets countries. The emerging markets countries include China, South Korea, Brazil, Mexico, Taiwan, India and others. The split between the developed and emerging countries in the portfolio follows the breakdown in MSCI's benchmark for global equities (MSCI ACWI).

The return from the DNRF's developed markets equity portfolio was minus

Return on investment	2022	2021	2020	2019	2018
Bonds and cash, million DKK	-484.0	-8.7	104.1	140.2	-12,6
Equities, million DKK	-372.0	441.4	251.5	484.4	-179.1
<b>Total return, million DKK</b>	<b>-856.0</b>	<b>432.7</b>	<b>355.5</b>	<b>624.6</b>	<b>-191.7</b>
Foundation return, % <sup>1</sup>	-14.2	7.5	6.4	11.1	-3.1
Benchmark return, %	-14.1	7.7	5.7	10.7	-3.3
Foundation 5 years p.a. return, % <sup>2</sup>	1.1	5.7	5.6	4.6	4.2
Benchmark 5 years p.a. return, % <sup>2</sup>	0.9	5.4	5.3	4.4	4.1

<sup>1</sup> The annual return on the total investment is a weighted average of each portfolio's return.

<sup>2</sup> The geometric mean

Return in percent (%)			
Asset type	DNRF	Benchmark	Benchmark name
Global equities	-13.0	-12.8	MSCI World net (DKK)
Currency hedge (equities)	-3.1	-3.1	-
Emerging Markets equities	-12.6	-14.9	MSCI EM net (DKK)
Danish nominal bonds	-15.7	-15.2	25% Nordea GCM DK Gov. Bonds CM 5 75% Nordea Mortgage bonds
Global inflation-linked bonds	-7.1	-7.5	Barclays Global Inflation-linked Bond index 1-10 Y (95% Hedged)
European investment grade bonds	-14.7	-13.9	Barclays Capital Euro Major Corporate (ex. tobacco & weapon)
US high-yield bonds	-12.7	-13.3	ML US Cash Pay HY Constrained TR H (Hedged to DKK)

13.0% compared to a benchmark return of minus 12.8% (MSCI World).

In 2022 an EU tender regarding management of the developed markets equity portfolio (MSCI World) was finalized. As a result, the four global equity mutual funds were combined into one segregated account at Nykredit Bank A/S.

Eighty percent of the exposure to USD (United States dollar) and JPY (Japanese yen) in the developed markets equity portfolio is hedged to EUR.

During 2022 the USD strengthened against the DKK and the EUR, while the JPY weakened against the DKK and EUR. This resulted in a negative return from the currency hedging of minus 3.1%, since the exposure to USD is much higher than the JPY exposure. This resulted in a return on the developed markets equity portfolio, including the currency hedge, of minus 15.4%.

The emerging markets equity portfolio represented an average of 4.1% of the total assets during the year. This investment took place through the mutual fund GW&K Emerging Markets Equity Fund. The return

on the emerging markets equity portfolio in 2022 was minus 12.6%, which is higher than the benchmark (MSCI emerging markets) return of minus 14.9%. Emerging markets equities declined for the second consecutive year due to the growth-stifling zero Covid policy in China, Russia's invasion of Ukraine, and a generally weak sentiment for risky assets. The higher return from the portfolio compared to the benchmark was mainly due to several holdings in China rebounding in the fourth quarter and a strong stock selection in the sectors of Consumer Discretionary, Health Care and Communication Services.

### Return on bonds

The significant rise in interest rates in 2022 resulted in falling bond prices and negative returns on all of the foundation's bond portfolios. This was due to the central banks in the US and Europe raising their policy rates to fight the rise in inflation. Furthermore, the interest rate spread between the safe government bonds and the riskier credit bonds became wider in 2022.

The Danish nominal bond portfolio is managed by Nykredit Asset Management

(Nykredit); the portfolio had a return of minus 15.7%, which was lower than the benchmark return of minus 15.2%. The overweight of callable mortgage bonds in the portfolio added to the portfolio's negative performance relative to that of the benchmark. The callable bonds were negatively affected by the rising volatility of interest rates and the sale of Danish mortgage bonds by foreign investors. In addition, the underweight of government bonds added to the negative performance because of a widening of the interest rate spread between government bonds and Danish mortgage bonds.

The global inflation-linked bond portfolio is managed by Danske Bank Asset Management. The non-EUR currency exposure is hedged to EUR. The portfolio gave a return of minus 7.1% compared to a benchmark return of minus 7.5%. The inflation protection resulted in a less negative return in 2022 compared to the corresponding nominal bonds. The excess performance relative to the benchmark was due to good security allocation.

The European corporate bond (investment grade) portfolio is managed by Danske Bank



Asset Management. The portfolio had a return of minus 14.7% compared to minus 13.9% for the benchmark. The return for this asset class was also affected by rising interest rates and widening credit spreads during 2022. The return from the portfolio was lower than the return of the benchmark mainly because the portfolio's credit risk during the year was higher than the benchmark's, which is negative when interest rates rise.

The US corporate bond (high-yield) portfolio is managed by Columbia Threadneedle. During 2022, the high-yield bond portfolio had a return of minus 12.7%, which is higher than the return from the benchmark of minus 13.3%. The relative performance was better than the benchmark return primarily due to good security selection by the portfolio manager.

### **Responsible investment policy**

In 2022 the foundation updated its policy for responsible investments; the policy now includes the goals listed in the Paris Agreement. Furthermore, the foundation no longer invests in companies that produce tobacco and all portfolio managers must be signatories to the UN's Principles for Responsible Investment (PRI). The foundation has also clarified that the policy applies to the segregated mandates and that the mutual funds may have a slightly different policy.

Furthermore, the foundation will report on the portfolio's climate footprint and CO<sub>2</sub> emissions in asset classes where good quality data are available. The first report will be based on the 2022 figures and will be posted on the DNRF's website.

#### *The policy*

The Danish National Research Foundation's (DNRF) responsible investment policy and the goal of acting as a responsible investor are an integral part of the foundation's overall investment principles and strategy.

The DNRF acts as a responsible investor by investing in companies that live up to common internationally accepted principles

and norms for treating environmental, social and governance (ESG) issues and by not investing in companies involved in the production of controversial weapons.

Furthermore, it is the DNRF's goal that the foundation's investments shall support the Paris Agreement's goal to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. This requires that global greenhouse gas emissions fall by nearly half by 2030 and net-zero greenhouse gas emissions by 2050.

The DNRF supports this transition and takes this into account by investing in accordance with the objectives of the Paris Agreement.

It is a requirement that the foundation's portfolio managers as a minimum live up to the DNRF's responsible investment policy and guidelines and that all portfolio managers are signatories to the UN's PRI.

#### *Guidelines for equities and credit bonds*

The following is relevant for the foundation's investments in equities and corporate bonds. The guidelines are based on well-recognized

principles, guidelines, conventions, treaties and international ESG standards.

*When investing, portfolio managers must:*

- strive to live up to the United Nations Global Compact principles and/or OECD Guidelines for Multinational Enterprises;
- not invest in companies that violate broadly accepted international weapons-related conventions;
- not invest in producers of nuclear weapons in violation of the treaty on the Non-Proliferation of Nuclear Weapons;
- exclude tobacco producers;
- strive to live up to the ILO conventions on labor rights; and
- not invest in companies involved in the extraction of thermal coal or oil and gas extraction from tar sand or power generation from thermal coal, however allowing a:
  - maximum 5% of revenue from extraction of thermal coal or tar sand.
  - maximum 30% of revenue from power generation from thermal coal.

If the company has a credible and serious plan for divesting the thermal coal and/or tar sand business or for applying the goals of

the Paris Agreement, the company may be included in the portfolio, even if the company does not comply with the limits above.

The mutual funds may have other criteria than those stated above when investing.

#### *Implementation*

The regulatory framework states that the DNRF shall use external portfolio managers for all of its investments. The external portfolio managers are also responsible for implementing the responsible investment policy. Implementing the responsible investment policy may therefore differ between the portfolios/mandates.

The foundation can invest in mutual funds. However, it is not likely that a minority investor (such as the DNRF) in a mutual fund can determine the mutual fund's policy for responsible investments. The consequence is that these portfolios/mandates may not have exactly the same policy for responsible investments as stated above.

When the foundation chooses a mutual fund, the portfolio manager's/mutual fund's policy for responsible investments is an important selection criterion in the overall

assessment of the manager of the mutual fund. Mutual funds must at least comply with the most important parts of the DNRF's policy for responsible investments (principles, conventions, treaties, and the Paris Agreement) at the time they are selected.

The DNRF's managers of equities and credit bond portfolios screen the portfolios on a regular basis to identify companies that continuously violate the above-mentioned principles and conventions.

On this basis and on the basis of engagement with the companies, the portfolio manager decides which companies should be excluded based on the agreed responsible investment policy. Therefore, the exclusion lists may vary from portfolio to portfolio.

#### *Engagement*

Engagement is a part of being a responsible investor. Therefore, the foundation's external portfolio managers

- should have a dialog with/engage with companies that do not live up to the ESG policy; and
- should exercise their voting rights on important issues.

The foundation's portfolio managers engage with companies in which they have invested on an ongoing basis, for example, by having a dialog with companies about the relevant issues. The engagement is based on the responsible investment policy applied to the mandate.

The DNRF's goal is to have as high a share of exercising voting rights as possible. The portfolio managers monitor the items in the general meetings on an ongoing basis and use their voting rights on most of the items.

#### *Reporting*

To follow the development toward the goal of zero emissions by 2050, the DNRF will report on the portfolio's climate footprint and CO2 emission on the asset classes where good quality data are available. The first reporting will be on the 2022 figures and will be posted on the foundation's website.

#### *Government bonds*

When investing in government bonds, the foundation only invests in government bonds issued by countries that act in accordance with internationally recognized principles of good governance and human rights and where the country or the key

individuals in the country are not subject to UN or EU financial sanctions.

The DNRF's responsible investment policy is also available at

<https://dg.dk/en/investments/>

The responsible investment policy for each of the DNRF's investment mandates or mutual funds varies. For example, the SEB (high-yield bonds) and GW&K (emerging markets equities) mutual funds do not exclude companies involved in the production of tobacco.

#### **Investment Committee**

The investment committee's task is to give the board recommendations about the investment strategy, risk management, portfolio managers, the responsible investment policy, the long-term forecast, and other investment-related issues. The members of the investment committee are Per Skovsted (chair), Professor Peter Løchte Jørgensen, and Tine Choi Danielsen. Tine Choi Danielsen replaced CEO Torben Möger Pedersen during 2022. The committee held two meetings in 2022.

#### **DONATION OF 500,000 DKK FROM THE J.H. SCHULTZ FOUNDATION**

In 2022 the board of the J.H. Schultz Foundation decided once more to donate 500,000 DKK to the DNRF. J.H. Schultz Foundation is the main shareholder in the Schultz Group.

# Independent auditor's report

TO THE BOARD OF THE DANISH  
NATIONAL RESEARCH FOUNDATION

## Opinion

We have audited the financial statements of The Danish National Research Foundation for the financial year 01.01.2022 - 31.12.2022, which comprise the income statement, balance sheet, statement of changes in equity, and notes, including a summary of significant accounting policies. The financial statements are prepared in accordance with the Danish Financial Statements Act subject to the adjustments caused by the special nature of the Foundation.

In our opinion, the financial statements give a true and fair view of the Foundation's financial position on 31.12.2022 and of the results of its operations for the financial year 01.01.2022 - 31.12.2022 in accordance with the Danish Financial Statements Act subject to the adjustments caused by the special nature of the Foundation.

## Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) and additional requirements applicable in Denmark, and the public auditing standards, as the audit is performed based on the provisions of the Act on the Danish National Research Foundation, see Consolidated Act No. 200 of 26 February 2019. Our responsibilities under those standards and requirements are further described in the "Auditor's responsibilities for the audit of the financial statements" section of this auditor's report.

The auditor general is independent of the Foundation in accordance with section 1(6) of the Danish Auditor General Act, and the approved auditor is independent of the Foundation in accordance with the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (IESBA Code) and the additional ethical requirements applicable in Denmark, and we have both fulfilled our other ethical responsibilities in accordance with these rules and requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

## Management's responsibilities for the financial statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with the Danish Financial Statements Act subject to the adjustments caused by the special nature of the Foundation, and for such internal control as Management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, Management is responsible for assessing the Foundation's ability to continue as a going concern, for disclosing, as applicable, matters related to going concern, and for using the going concern basis of accounting in preparing the financial statements unless Management either intends to liquidate the Foundation or to cease operations, or has no realistic alternative but to do so.

## Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes



our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs and the additional requirements applicable in Denmark, and the public auditing standards, as the audit is performed based on the provisions of the Act on the Danish National Research Foundation, see Consolidated Act No. 200 of 26 February 2019, will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit conducted in accordance with ISAs and the additional requirements applicable in Denmark, and the public auditing standards, as the audit is performed based on the provisions of the Act on the Danish National Research Foundation, see Consolidated Act No. 200 of 26 February 2019, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and

perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Foundation's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management.
- Conclude on the appropriateness of Management's use of the going concern basis of accounting in preparing the financial statements, and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are

required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Foundation to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures in the notes, and whether the financial statements represent the underlying transactions and events in a manner that gives a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### **Statement on the management commentary**

Management is responsible for the management commentary.

Our opinion on the financial statements does not cover the management commentary, and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the management commentary and, in doing so, consider whether the management commentary is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

Moreover, it is our responsibility to consider whether the management commentary provides the information required under the Danish Financial Statements Act subject to the adjustments caused by the special nature of the Foundation.

Based on the work we have performed, we conclude that the management commentary is in accordance with the financial statements and has been prepared in accordance with the requirements of the Danish Financial Statements Act subject to the adjustments caused by the special nature of the Foundation. We did not identify any material misstatement of the management commentary.

### **Statement on compliance audit and performance audit**

Management is responsible for the transactions covered by the financial statements complying with the appropriations granted, laws and other regulations, and with agreements entered into and usual practice, and for ensuring that sound financial management is exercised in the administration of the funds and activities covered by the financial statements. Management is also responsible for setting up systems and processes supporting financial prudence, productivity and efficiency.

As part of our audit of the financial statements, it is our responsibility to perform compliance audit procedures and performance audit procedures on selected subject matters in accordance with the public auditing standards. In our compliance audit, we test the selected subject matters to obtain reasonable assurance about whether the examined transactions covered by the financial statements comply with relevant provisions of the appropriations granted, laws and other regulations, and with agreements entered into and usual practice. In our performance audit, we make an assessment to obtain reasonable assurance about whether the systems, processes or transactions examined support the exercise of sound financial management in

the administration of the funds and activities covered by the financial statements. If, based on the procedures performed, we conclude that material critical comments should be made, we are required to report this in this statement. We have no material critical comments to report in this connection.

*Copenhagen, March 16, 2023*

### **The auditor general (Rigsrevisionen)**

**Henrik Lange**

*Head of division*

**Heidi Demant Helander**

*Accountant*

### **Deloitte**

Statsautoriseret Revisionspartnerselskab  
CVR No. 33963556

**Jens Sejer Pedersen**

State Authorised Public Accountant  
Identification No (MNE) mne14986

**Jacob Medard Frederiksen**

State Authorised Public Accountant  
Identification No (MNE) mne44110

# Accounting policies

The annual report is presented in accordance with the Consolidated Act on the Danish National Research Foundation, the Danish Executive Order on the Administration of the Funds of the Danish National Research Foundation, the Royal Decree on the Charter of the Danish National Research Foundation and the provisions of the Danish Financial Statements Act governing reporting class C enterprises (large) with the adjustments resulting from the special nature of the foundation.

The provisions of the Danish Financial Statements Act governing reporting class C enterprises (large) prescribe preparation of a cash flow statement. Due to the nature of the foundation's activities, the cash flows cannot reasonably be broken down by cash flows from operating, investing and financing activities, for which reason the cash flow statement has been omitted, referring to Section 11(3) of the Danish Financial Statements Act. In addition, the foundation has decided to derogate from the format requirements laid down by the

Danish Financial Statements Act for the income statement in order to illustrate the special nature of the foundation.

The accounting policies applied are consistent with those applied last year.

## INCOME STATEMENT

### Interest income

Interest income from bonds and bank deposits are accrued so it relates to the financial year under audit.

### Dividend

Dividend received on shares is included in the income statement at the time of distribution.

### Realized capital gains and losses on and market value adjustments of securities

Realized capital gains and losses on and market value adjustments of securities (bonds and equities) are included in the income statement.

### Other income

Other income comprises general donations from private donors. The funds are recognized when transferred to the foundation.

### External expenses for the scientific activities of the Foundation

Such expenses comprise expenses for the foundation's scientific activities, including expenses for the consideration of applications and evaluation of grants.

### Income tax

The foundation is not liable to tax.

## BALANCE SHEET

### Fixed assets

Leasehold improvements are recognized in the balance sheet at cost less accumulated depreciation. Fixed assets are depreciated straight-line over their estimated useful lives of five years.

Office equipment and furniture is recognized at cost less accumulated depreciation. Office equipment and

furniture is depreciated straight-line over their estimated useful lives, meaning three years for IT hardware and software and five years for other office equipment.

Assets costing less than DKK 25,000 per unit are expensed in the year of acquisition.

### **Securities**

Listed securities (bonds and equities) are measured at fair value (quoted price) at the balance sheet date. Bonds redeemed at the time of presentation of the annual accounts are recognized at par value. Other investments are measured at the lower of the value at the date of acquisition and fair value.

### **Net capital**

Distributions by the foundation mainly take the form of multiannual total grants awarded over a number of years concurrently with, and conditional on, the actual completion of the research projects. An amount corresponding to the unpaid share of such total grants is recognized as predisposed capital under the net capital. Other net capital is classified as non-predisposed capital. An amount corresponding to the total grants provided during the year is transferred from the

non-predisposed capital to the predisposed capital. The grants paid during the year are deducted from the predisposed capital.

### **Foreign currency translation**

Foreign currency transactions are translated into DKK applying the exchange rate at the transaction date. Realized and unrealized gains and losses are recognized in capital income in the income statement.

Bank deposits and securities denominated in foreign currencies are translated into DKK applying the balance sheet date exchange rate. Realized and unrealized foreign exchange gains and losses are recognized in capital income in the income statement.

### **Derivative financial instruments**

The Danish National Research Foundation only applies derivative financial instruments to hedge the currency and interest rate risks involved in the portfolio of securities.

Changes in the fair value of derivative financial instruments classified as and complying with the requirement for hedging the fair value of a recognized asset or a recognized liability are recorded in the income statement together with changes in the value of the

hedged asset or the hedged liability. In doing so, symmetrical recognition of gains and losses on the item hedged and the hedging instrument, respectively, is ensured.

Premiums received or paid as well as forward premiums and discounts are recognized in the income statement over the terms of the instruments. The fair value of derivative financial statements classified as and qualifying for hedging of an instrument to hedge a recognized asset or liability is recognized in the balance sheet along with the asset or liability to which hedging relates.



## INCOME STATEMENT JANUARY 1 - DECEMBER 31

	Note	2022	2021
<b>Return on investment</b>			
Realized gains and losses, bonds		-169,916,281	3,735,591
Unrealized gains and losses, bonds		-314,009,313	-12,145,063
Realized gains and losses, equities		-132,661,877	3,445,377
Unrealized gains and losses, equities		-239,353,099	437,965,928
Interest, bank deposits		-107,681	-339,351
<b>Return on investment, total</b>		<b>-856,048,251</b>	<b>432,662,482</b>
<b>Other receipts, net</b>	1	<b>500,000</b>	<b>500,000</b>
<b>Costs</b>			
Custody and bank fees etc.	2	-4,111,625	-3,416,443
Salaries etc.	3	-8,803,458	-8,992,654
Office expenses	4	-716,235	-577,789
Premises	5	-1,055,937	-1,005,358
Accountant/attorney remuneration etc.	6	-1,062,360	-1,172,085
External expenses, research activities	7	-767,556	-607,795
Other expenses	8	-364,723	-341,930
Depreciation	9	-69,781	-92,682
<b>Costs, total</b>		<b>-16,951,675</b>	<b>-16,206,736</b>
<b>Result for the year</b>		<b>-872,499,926</b>	<b>416,955,746</b>
<b>Predisposed capital:</b>			
Predisposed capital, January 1		1,339,256,897	1,462,427,915
Distribution disbursed in the year	14a	-371,037,188	-359,966,522
Grants transferred from non-predisposed capital	14a	427,267,084	236,795,504
<b>Predisposed capital, December 31</b>		<b>1,395,486,793</b>	<b>1,339,256,897</b>

## BALANCE SHEET DECEMBER 31

	Note	2022	2021
<b>ASSETS</b>			
<b>Fixed assets</b>			
<b>Tangible fixed assets</b>	10		
Leasehold improvements		37,210	98,920
Office equipment and furniture		0	8,071
		37,210	106,991
<b>Fixed asset investments</b>			
Deposits		270,032	263,064
		270,032	263,064
<b>Fixed assets, total</b>		<b>307,242</b>	<b>370,055</b>
<b>Current assets</b>			
<b>Receivables</b>			
Accrued interest		16,380,766	12,234,546
Other receivables		1,335,365	1,225,555
Deferred charges		1,510,645	114,725
		19,226,776	13,574,826
<b>Liquid assets</b>			
Securities, bonds	11	2,889,713,392	3,619,077,321
Securities, equities	12	1,727,867,530	2,238,719,645
Bank deposits	13	24,637,196	34,679,080
		4,642,218,118	5,892,476,046
<b>Current assets, total</b>		<b>4,661,444,894</b>	<b>5,906,050,872</b>
<b>ASSETS, TOTAL</b>		<b>4,661,752,136</b>	<b>5,906,420,927</b>
<b>EQUITY AND LIABILITIES</b>			
<b>Net capital</b>		<b>4,659,442,295</b>	<b>5,902,979,409</b>
<b>Payables</b>			
<b>Short-term payables</b>			
Payables and back costs		2,309,841	3,441,518
<b>Payables, total</b>		<b>2,309,841</b>	<b>3,441,518</b>
<b>EQUITY AND LIABILITIES, TOTAL</b>		<b>4,661,752,136</b>	<b>5,906,420,927</b>
<b>Distribution obligations</b>			
	14c		
<b>Contingent liabilities</b>	15		

## STATEMENT OF CHANGES IN NET CAPITAL FOR 2022

	Non-Predisposed capital	Predisposed capital	Total Net Capital
Net Capital at January 1, 2022	4,563,722,512	1,339,256,897	5,902,979,409
Result for the year	-872,499,928	0	-872,499,928
Distribution disbursed in the year	0	-371,037,188	-371,037,188
Grants transferred from non-predisposed capital	-427,267,084	427,267,084	0
<b>Net Capital at the end of the year</b>	<b>3,263,955,500</b>	<b>1,395,486,793</b>	<b>4,659,442,293</b>

According to the Danish Executive Order no. 325 of March 29, 2016 on the financial management of the funds of the Danish National Research Foundation, the foundation's net capital consists of the capital contributed at the formation of the Danish National Research Foundation, the return on this capital and public grants less subsequent spending and losses.

The predisposed capital includes the commitments given to the grantees of the Danish National Research Foundation to carry out the operating activities, which have not yet been paid at the balance date; see the specification in note [14a].

## NOTES 1-13

	2022	2021
<b>1 OTHER RECEIPTS, NET</b>		
Private donation	500,000	500,000
<b>Other receipts, total</b>	<b>500,000</b>	<b>500,000</b>
<b>2 CUSTODY AND BANK FEES, ETC.</b>		
Bonds	2,913,204	3,205,504
Equities	1,170,904	160,011
<b>Fees, portfolio managers</b>	<b>4,084,108</b>	<b>3,365,515</b>
Bank	15,658	8,408
Other	11,859	42,520
<b>Custody and bank fees, total</b>	<b>4,111,625</b>	<b>3,416,443</b>
<b>3 SALARIES ETC.</b>		
CEO and board members	2,683,938	2,784,897
Severance pay provision	125,906	692,257
Salaries, other employees	5,242,715	4,793,706
Wage reimbursement	-49,899	-27,523
Pension costs	768,614	711,082
Danish Labor Market Supplementary Pension Scheme (ATP)	32,186	38,235
<b>Salaries etc., foundation staff, total</b>	<b>8,803,458</b>	<b>8,992,654</b>
Average staff number, accounting year	10	10
<b>4 OFFICE EXPENSES</b>		
Office supplies	11,163	10,748
Postage and freight	1,295	4,980
Telephone, Internet	88,166	216,005
Minor acquisitions	61,436	77,212
Journal, books, etc.	67,987	18,634
Software subscriptions	300,893	0
Servicing contracts etc.	185,295	250,210
<b>Office expenses, total</b>	<b>716,235</b>	<b>577,789</b>
<b>5 PREMISES</b>		
Rent of office	810,096	789,189
Electricity, heating	82,539	60,669
Cleaning	157,676	154,528
Repairs and maintenance	5,626	972
<b>Premises, total</b>	<b>1,055,937</b>	<b>1,005,358</b>

## NOTES 1-13

	2022	2021
6 ACCOUNTANT/ATTORNEY REMUNERATION ETC.		
Accountant remuneration, Deloitte	245,025	242,500
Accountancy consultation, Deloitte	0	0
Attorney's remuneration	278,438	715,531
Other consultancy services	538,897	214,054
<b>Accountant/attorney remuneration etc., total</b>	<b>1,062,360</b>	<b>1,172,085</b>
7 EXTERNAL EXPENSES, RESEARCH ACTIVITIES		
Peer review expenses	406,811	10,891
Preparation of publications	197,693	378,153
Research presentations, meetings etc.	125,397	184,315
European Science Foundation membership fee	37,655	34,436
<b>External expenses, research activities, total</b>	<b>767,556</b>	<b>607,795</b>
8 OTHER EXPENSES		
Travelling and accommodation	152,350	134,948
Advertising	6,244	7,081
Entertainment expenses, gifts	1,335	240
Courses	1,600	29,878
Insurance	119,504	107,923
Cost of staff and board	83,690	61,860
<b>Other expenses, total</b>	<b>364,723</b>	<b>341,930</b>
9 DEPRECIATION		
Leasehold improvements, see note 10	61,710	61,710
Office furniture and equipment, see note 10	8,071	30,972
<b>Depreciation, total</b>	<b>69,781</b>	<b>92,682</b>

	2022	2021	
	Leasehold improvements	Office equipment and furniture	Total
10 TANGIBLE FIXED ASSETS			
Acquisition cost, January 1, 2022	2,327,492	1,275,321	3,602,813
Additions	0	0	0
Disposals	0	0	0
Acquisition cost, December 31, 2022	2,327,492	1,275,321	3,602,813
Depreciation, accumulated, January 1, 2022	-2,228,572	-1,267,250	-3,495,822
Depreciation for the year	-61,710	-8,071	-69,781
Reversed depreciation, disposals for the year	0	0	0
Depreciation, accumulated, December 31, 2022	-2,290,282	-1,275,321	-3,565,603
Book value at year-end	37,210	0	37,210

## 11 SECURITIES, BONDS

## Asset classes

Danish bonds	1,462,173,660	1,847,902,156
European corporate bonds	455,128,414	562,107,117
Global inflation-linked bonds	524,835,784	646,352,495
US High yield bonds *	447,575,534	562,715,553
<b>Bonds, total</b>	<b>2,889,713,392</b>	<b>3,619,077,321</b>

\* Option adjusted duration, December 31, 2022: 4.02 (December 31, 2021: 4.03).

## Danish bonds

## Distribution by type of security:

Mortgage bonds	1,461,583,062	1,847,197,874
Government bonds	0	0
Other bonds	590,598	704,282
	<b>1,462,173,660</b>	<b>1,847,902,156</b>

Option adjusted duration, December 31, 2022: 5.4 (December 31, 2021: 5.4).

## European corporate bonds

## Distribution by rating category and forward currency contract:

AA	0	7,307,393
A	107,245,357	135,074,340
BBB	347,883,057	419,725,384
	<b>455,128,414</b>	<b>562,107,117</b>

Rating category according to Standard & Poor's Long-Term Credit Rating.  
Option adjusted duration, December 31, 2022: 4.5 (December 31, 2021: 5.2).

## NOTES 1-13

	2022	2021
<b>Global inflation-linked bonds</b>		
<b>Distribution by country and forward currency contract:</b>		
Canada	4,689,291	9,553,826
Germany	14,094,472	21,174,471
France	65,547,618	70,410,798
Great Britain	61,452,137	61,262,403
USA	353,542,259	438,217,167
New Zealand	12,737,303	21,138,369
Sweden	2,806,107	3,495,638
Australia	6,554,268	22,740,621
Forward currency contracts	3,412,329	-1,640,798
	<b>524,835,784</b>	<b>646,352,495</b>

Adjusted duration, December 31, 2022: 2.3 (December 31, 2021: 2.7).

## 12 SECURITIES, EQUITIES

Nykredit Invest Globale Aktier Basis	0	291,047,470
Nykredit Bank A/S	1,538,189,353	0
Withholding tax reclaims Nykredit Bank A/S	611,646	0
NT World Custom ESG Equity Fund	0	573,175,253
NT World Custom ESG EUR HDG EQY	0	571,702,621
Withholding tax reclaims NT	981,886	0
Danske Invest Global Indeks, klasse DKK W d	0	553,397,183
GW&K Emerging Markets Equity Fund	184,374,583	248,803,781
Forward currency contracts and swaps	3,710,062	593,337
<b>Equities, total</b>	<b>1,727,867,530</b>	<b>2,238,719,645</b>

## 13 LIQUID ASSETS

Cash	3,009	5,228
Current bank accounts	3,384,231	1,784,431
Portfolio accounts	21,249,956	32,889,421
<b>Liquid assets, total</b>	<b>24,637,196</b>	<b>34,679,080</b>

## NOTES 14A

14A DISTRIBUTION OBLIGATIONS  
2022 distributions and total grants, DKK thousand

Grant no.		Grant 1st period	Grant 2nd period	Changes in 2022	Grants total	Disbursed 2022	Residual disbursement expected
<b>Closed grants</b>		3,558,175	2,581,695	0	6,139,870	0	0
<b>Course activities for center leaders/outreach program</b>							
88.	Management course/communication	3,550	7,600		11,150	957	2,109
<b>Centers established in 2012</b>							
98.	Centre for Medieval Literature	36,000	24,000		60,000	1,930	988
99.	Center for Dynamic Molecular Interactions	49,000	32,700		81,700	2,313	0
100.	Center for Permafrost dynamics in Greenland	60,242	39,500		99,742	3,060	144
101.	Center for Quantum Devices	64,408	46,900		111,308	8,683	7,297
102.	Center for Financial Frictions	48,000	32,000		80,000	3,751	0
103.	Center for Nanostructured Graphene	54,138	36,000		90,138	2,757	582
105.	Center for International Courts	42,000	28,000		70,000	3,393	0
106.	Stellar Astrophysics Centre	55,000	36,700		91,700	4,860	0
107.	Copenhagen Center for Glycomics	62,000	41,507		103,507	4,882	0
<b>Centers established in 2015</b>							
115.	Center for Chromosome Stability	65,000	45,000		110,000	9,510	28,864
116.	Center for Stem Cell Decision Making	54,986		-131	54,855	-131	0
117.	Center for Music in the Brain	52,207	45,946		98,153	9,426	32,571
118.	Center for Carbon Dioxide Activation	60,000	25,000		85,000	6,447	15,169
119.	Center for Urban Network Evolutions	65,000	40,000		105,000	9,420	25,099
120.	Center for Bacterial Stress Response and Persistence	34,814			34,814	187	0
121.	Center for Neuroplasticity and Pain	60,242	25,000		85,242	7,199	15,861
122.	Center for Intelligent Oral Drug Delivery and Sensing using Microcontainers and Nanomechanics	56,000	40,000		96,000	8,593	27,512
123.	Center for Silicon Photonics for Optical Communications	59,000	41,594		100,594	10,278	27,654
124.	Center for Hyperpolarization in Magnetic Resonance	55,000			55,000	6,550	0
125.	Center for Autophagy, Recycling and Disease	50,000	45,372		95,372	9,271	20,890
126.	Center for Personalized Medicine Managing Infectious Complications in Immune Deficiency	60,000	40,055		100,055	11,166	19,912

## NOTES 14A

## 14A DISTRIBUTION OBLIGATIONS

2022 distributions and total grants, DKK thousand

Grant no.		Grant 1st period	Grant 2nd period	Changes in 2022	Grants total	Disbursed 2022	Residual disbursement expected
<b>Niels Bohr Professorships established in 2016-2017</b>							
127.	Rita Felski, University of Southern Denmark	27,997		-677	27,320	254	0
128.	Matthew Collins, University of Copenhagen	30,860			30,860	986	0
129.	John McGrath, Aarhus University	29,948		-62	29,886	2,008	0
130.	Thomas Pohl, Aarhus University	25,255		-61	25,194	326	0
131.	Morten Bennedsen, University of Copenhagen	29,909			29,909	1,593	0
132.	Enrico Ramirez-Ruiz, University of Copenhagen	21,666		-92	21,574	47	0
<b>Centers established in 2017 and 2018</b>							
133.	Center for Proteins in Memory	62,000			62,000	12,153	13,298
134.	Center for Economic Behavior and Inequality	57,000			57,000	12,698	15,659
135.	Center for Cellular Signal Patterns	61,000			61,000	10,686	9,471
136.	Center for Electromicrobiology	56,000			56,000	7,586	6,412
137.	Center for Microbial Secondary Metabolites	58,000			58,000	11,988	16,764
138.	Center for Privacy Studies	50,000			50,000	8,703	6,714
139.	Center for Hybrid Quantum Networks	62,000			62,000	8,893	10,130
140.	The Cosmic Dawn Centre	66,173			66,173	17,802	21,251
141.	Center for Functional Genomics and Tissue Plasticity	65,000			65,000	12,575	14,692
142.	Center for Macroscopic Quantum States	63,000			63,000	10,207	14,022
<b>Centers established in 2020 and 2021</b>							
143.	Center for Evolutionary Hologenomics	67,654			67,654	12,419	31,426
144.	Center for the Experimental-Philosophical Study of Discrimination	62,626			62,626	11,108	44,751
145.	Danish Center for Hadal Research	54,612			54,612	10,531	36,061
146.	Center for Visualizing Catalytic Processes	85,826			85,826	5,566	73,919
147.	Center for Nanophotonics	62,856			62,856	10,318	41,465
148.	Center for Molecular Prediction of Inflammatory Bowel Disease	68,470		360	68,830	14,408	49,596
149.	Center for High Entropy Alloys Catalysis	61,407			61,407	7,849	44,464
150.	Center for Interstellar Catalysis	67,382			67,382	13,483	39,346
151.	Copenhagen Center for Geometry and Topology	60,169		360	60,529	9,539	43,799
152.	Center for Complex Quantum Systems	66,576			66,576	9,295	48,108

## 14A DISTRIBUTION OBLIGATIONS

2022 distributions and total grants, DKK thousand

Grant no.		Grant 1st period	Grant 2nd period	Changes in 2022	Grants total	Disbursed 2022	Residual disbursement expected
<b>DNRF Chair established in 2020 to 2022</b>							
153.	Jesper Svejstrup, University of Copenhagen	15,000			15,000	3,141	1,988
154.	Morten Ørregaard Nielsen, Aarhus University	7,114			7,114	1,819	5,296
155.	Steffan Persson, University of Copenhagen	8,000			8,000	3,415	3,892
156.	Peter Jørgensen, Aarhus University	7,928			7,928	2,408	5,017
157.	Vivek Shende, University of Southern Denmark	8,000			8,000	2,051	4,991
159.	Anders Johansen, University of Copenhagen	8,500			8,500	2,357	6,143
160.	Samir Bhatt, University of Copenhagen			6,820	6,820	256	6,564
161.	Ruth Loss, University of Copenhagen			8,000	8,000	336	7,664
162.	Vitor Cardoso, University of Copenhagen			9,772	9,772	657	9,115
163.	Gregory Clark, University of Southern Denmark			10,000	10,000		10,000
<b>Pioneer Centers established in 2021 and 2022</b>							
158.	Pioneer Center for Artificial Intelligence	144,000		0	144,000	6,028	136,885
175.	Pioneer Center for Landscape Research in Sustainable Agricultural Futures			70,000	70,000	1,046	68,954
<b>Centers established in 2022</b>							
165.	Center for Polariton-driven Light-Matter			59,960	59,960		59,960
166.	Center for Gene Expression			68,639	68,639		68,639
167.	Center for Big Data in Finance			59,399	59,399		59,399
169.	Center for Global Mobility Law			36,000	36,000		36,000
171.	Centre for Culture and the Mind			38,982	38,982		38,982
173.	Center for Ecological Dynamics in a Novel Biosphere			59,998	59,998		59,998
<b>Grant and distribution, total</b>		<b>6,326,690</b>	<b>3,254,570</b>	<b>427,267</b>	<b>10,008,527</b>	<b>371,037</b>	<b>1,395,487</b>

The number of grants listed in the key figures includes the grants for which the foundation has disbursed in 2022



## NOTES 14B

## 14B ANNUAL DISBURSEMENTS, DKK THOUSAND:

Year	Disbursed	Expected disbursements to activities listed above	Total
1993	19,133		
1994	141,708		
1995	154,509		
1996	176,194		
1997	200,876		
1998	247,751		
1999	243,346		
2000	224,484		
2001	228,789		
2002	256,877		
2003	239,915		
2004	173,489		
2005	195,185		
2006	195,225		
2007	242,803		
2008	321,277		
2009	274,998		
2010	387,270		
2011	358,754		
2012	390,990		
2013	423,039		
2014	435,944		
2015	424,512		
2016	381,286		
2017	384,769		
2018	409,291		
2019	414,417		
2020	335,205		
2021	359,967		
2022	371,037		
2023		478,683	
2024		346,006	
2025		228,669	
2026		129,940	
2027		78,285	
2028		64,908	
2029		22,932	
2030		18,662	
2031		14,515	
2032		6,238	
2033		4,132	
2034		2,517	
	<b>8,613,040</b>	<b>1,395,487</b>	<b>10,008,527</b>

The disbursements specified above are distributed according to the expected year of disbursement.

Disbursements are made on the basis of the grant holders' revised budgets. In consequence, the final presentation of accounts to the foundation may result in adjustments of the disbursements for the following years.

## NOTES 14C-15

## 14C EXPECTED DISTRIBUTIONS 2023 - 2027

In addition to the distribution obligations listed in notes 14a and 14b, new grants are expected to be established as a result of application rounds for Centers of Excellence, DNRF Chair and Pioneer centers. Total (including given and planned) distributions are expected to be as follows:

Year	Million DKK
2023	536
2024	538
2025	534
2026	566
2027	539
	<b>2,713</b>

## 15 CONTINGENT LIABILITIES

The foundation has to give six months' notice to terminate the tenancy agreement. The obligation amounts to DKK 416,478

The foundation has entered into forward and futures currency and currency swaps for the purchase and sale of the following currencies (amounts calculated in the currencies in question):

	2022	
Currency	Purchase	Sale
USD	540,000	170,887,000
JPY	0	1,524,732,000
CAD	12,000	919,000
EUR	186,059,463	639,653
GBP	78,000	7,352,000
NZD	0	2,881,000
AUD	19,000	1,409,000
DKK	0	0
SEK	270,000	4,435,000

	2021	
Currency	Purchase	Sale
USD	11,860,543	193,972,661
JPY	127,741,307	1,403,284,434
CAD	1,240,000	3,073,000
EUR	201,678,963	15,854,461
GBP	423,000	7,300,000
NZD	1,360,000	6,030,000
AUD	48,000	4,779,000
DKK	16,302,000	16,302,000
SEK	58,000	4,830,000

The market price of the forward currency contracts and swaps as of December 31 is set at the value of the securities in question, see notes 12 and 13.

The foundation has entered into interest-rate futures for the purchase and sale of the following, calculated in the currencies in question:

	2022	
Currency	Purchase	Sale
EUR	6,800,000	0

	2021	
Currency	Purchase	Sale
EUR	4,300,000	0

The market price of the interest-rate futures as of December 31 is set at the value of the securities in question, see note 12.

# Secretariat

# Secretariat

The composition of the secretariat  
March 2023 was as follows:



**Søren-Peter Olesen**

CEO, professor, MD-Ph.D.  
spo@dg.dk



**Johanne Juhl Rye**

Senior Adviser, M.Sc.  
jj@dg.dk



**Mette Müller**

Senior Adviser, M.A.  
mm@dg.dk



**Steen Marcus**

CFO, M.Sc.  
sm@dg.dk



**Lotte Ladegaard Zeuthen**

Head of Communication, M.A. and journalist  
llz@dg.dk



**Mikkel Bruus**

Data Analyst, M.Sc.  
mb@dg.dk



**Boje Thosti**

Investment Consultant, M.Sc.  
bt@dg.dk



**Metha Nielsen**

Accounting Officer, B.Sc.  
mn@dg.dk



**Morten Andreassen**

Senior Adviser, Ph.D.  
ma@dg.dk



**Connie Hansen**

Bilingual Secretary  
ch@dg.dk



**Mette Hansgaard**

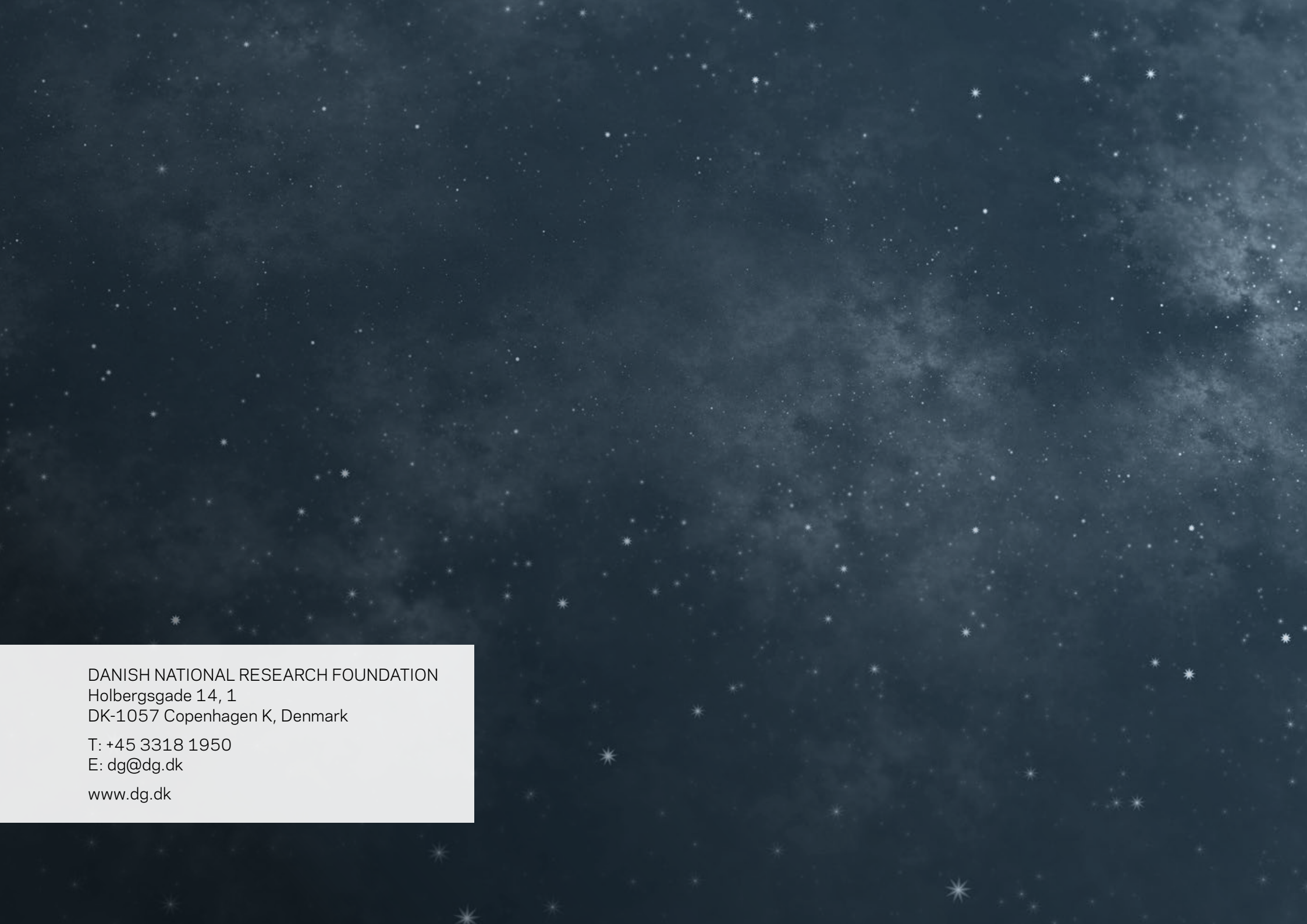
Executive Secretary  
dg@dg.dk

## Audit

The Office of the Auditor General and a chartered accountant shall audit the foundation's annual accounts. The board appoints the chartered accountant for a three-year term and the chartered accountant has to be approved by the Minister for Higher Education and Science. Jens Søjer Pedersen (Deloitte), State Authorized Public Accountant is appointed for the period June 1, 2022 to May 31, 2025.

## Editors

Morten Andreassen  
Steen Marcus  
Søren-Peter Olesen  
Jens Kehlet Nørskov (in chief)



DANISH NATIONAL RESEARCH FOUNDATION

Holbergsgade 14, 1

DK-1057 Copenhagen K, Denmark

T: +45 3318 1950

E: [dg@dg.dk](mailto:dg@dg.dk)

[www.dg.dk](http://www.dg.dk)