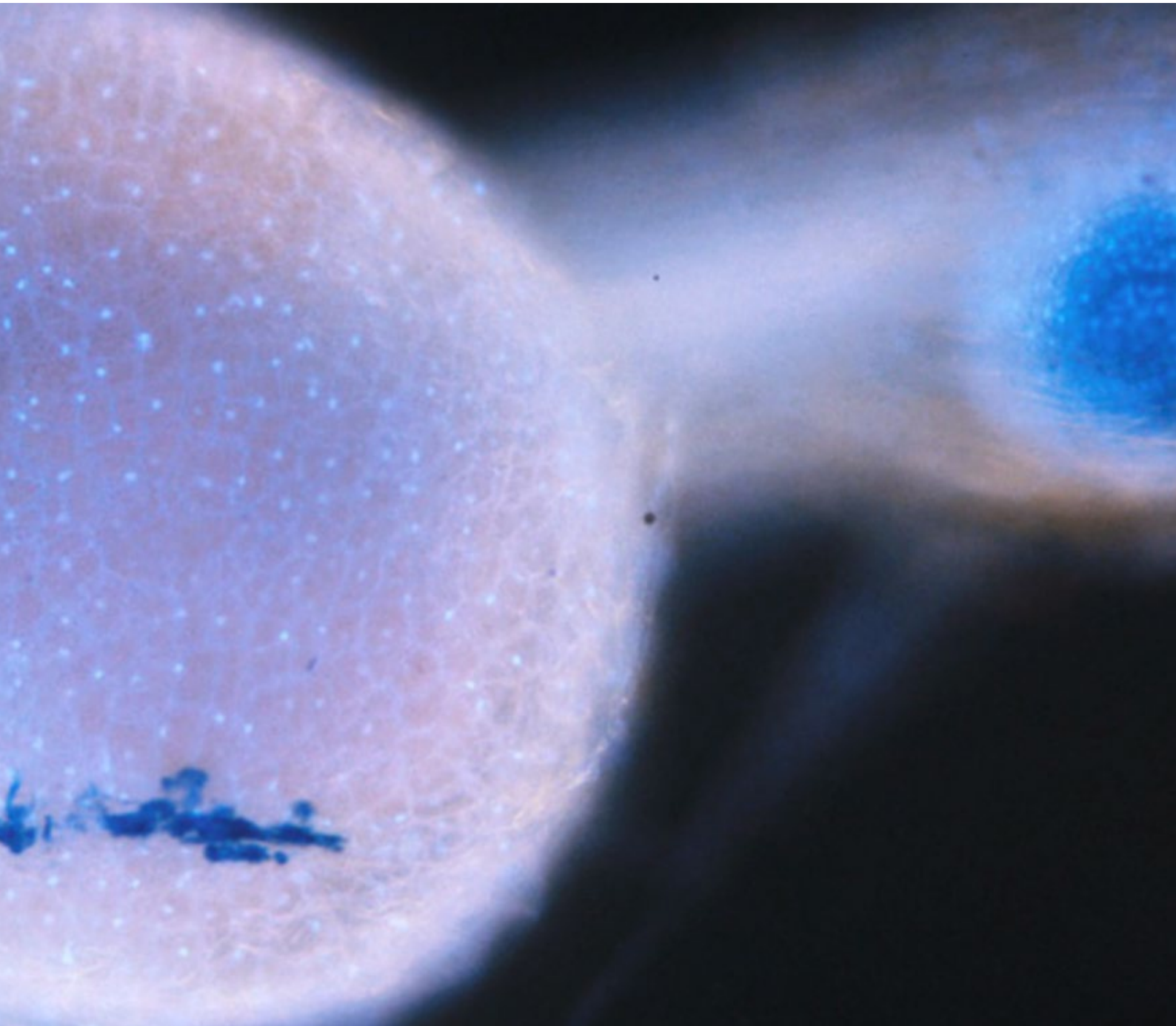
Danmarks
Grundforskningsfond
Danish National
Research Foundation

ANNUAL REPORT 2018



KEY FIGURES 2014-2018

	2018	2017	2016	2015	2014
Grants and distributions					
Total grants at year-end, centers and Niels Bohr professors	53	59	58	66	57
Annual distributions, million DKK	409.3	384.8	381.3	424.5	435.9
Return on investment					
Bonds and cash, million DKK	-12.6	128.6	218.6	-44.0	182.7
Equities, million DKK	-179.1	293.4	192.5	1.1	153.8
Total return, million DKK	-191.7	422.0	411.2	-42.9	336.4
Administrative costs					
Administrative costs including depreciation, million DKK	13.2	11.3	12.2	11.5	12.1
Administrative costs compared to distributions, %	3.2	2.9	3.2	2.7	2.8
Administrative costs per grant, million DKK	0.2	0.2	0.2	0.2	0.2
Capital					
Net capital at year-end, million DKK	5,468.5	6,086.2	6,064.2	6,051.8	3,535.4

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PREFACE

Diversity and excellence in recruitment and career development
The DNRF supports diversity with an open attitude whereby everyone — independent of age, identity group, value system, income, religion, political view, ethnicity, gender, sexuality, geography, or education — can contribute to research, with the only criteria being having the best competencies and the will to pitch in.

In 2018, the foundation chose to address the topic "Diversity and excellence in recruitment and career development" at its annual meeting. The DNRF chose this topic in order to investigate the concept of diversity, to understand more about when and how diversity can leverage research, and to learn from researchers about best practices in recruitment and career development.

The key take home message from the meeting was that diversity is a prerequisite for excellence in research.

The issue of diversity speaks to the core of the DNRF's purpose: strengthening Danish research through the funding of exceptional research at an international level. The DNRF provides long-term grants for outstanding research leaders to establish a Center of Excellence. A Center of Excellence represents the entire research food chain, from bachelor's and master's-level students, to Ph.D. students and post-docs, to full professors, and a center leader's careful work with recruitment is a key element in strengthening Danish research.

With scholarly excellence as the guiding principle, the DNRF strongly encourages the recruitment of diverse talent at all career stages. As center leader Jørgen Kjems put it in connection with the DNRF's annual meeting 2018: The team must consist of persons with related, but different backgrounds. *This interplay of knowledge and skills not only provides a more stimulating research environment where everybody is challenged to learn new things, but also creates new fissures in smooth surfaces that are more likely to catalyze breakthrough.*

You can read more about what we learned at the annual meeting on pages 18-23 and in the booklet *Diversity and Excellence in Recruitment and Career Development*.

Change of DNRF chair and new board member
At the turn of the year, the foundation had a change of chair. At the end of her term (2013-2018), Professor Liselotte Højgaard was succeeded by Professor Jens Kehlet Nørskov.

In her six years as the DNRF chair, Professor Højgaard had an immense importance for the foundation and for Danish research as a whole. She is and always has been an advocate for excellence, integrity, and professionalism in all aspects of the foundation's work, and she has worked tirelessly to ensure that DNRF grantees have the best possible conditions for carrying out their research in the same manner: always striving for excellence with indisputable integrity.

In her time as chair, Professor Højgaard, or Lotte, as we all know her, led two application rounds for Centers of Excellence, and one for Niels Bohr Professorships. She also attended more than 150 follow-up meetings and kept up a close and constructive dialogue with stakeholders, among many other tasks. Her effort for the DNRF is, if anything, characterized by her own mantra for how to do research and how to support research: excellence, excellence, excellence!

On January 1, 2019, Professor Jens Kehlet Nørskov took over the position of chair. He was appointed by Tommy Ahlers, the Minister for Higher Education and Science.

On September 1, 2018, Professor Clivia M. Sotomayor Torres became a member of the board. Professor Sotomayor Torres was nominated by the ATV, the Danish Academy of Technical Sciences.

10th application round
November 1, 2018, was the deadline for outline proposals for the foundation's 10th application round for Centers of Excellence. For this application round, the foundation received 133 outline proposals for a total amount of 8.2 billion DKK. Of the 133 outline proposals, 23 were selected to submit full proposals. The DNRF board will make its decision on which applicants will be invited to enter contract negotiations during October 2019.

You can read more about the 10th application round — distributions of subjects areas etc. — on pages 14-15.

Communicating research
In 2018, the foundation's secretariat worked toward implementing the board's strategy to broaden the reach of its communications on research by launching several new initiatives. The foundation launched a new website with individual pages for each grant holder, where it's easy to follow a center's research agenda and highlights and its latest results, to watch videos that explain the research, and to access a center's own social media content.

The foundation is disseminating news and the latest research results from its grant holders via its newsletter and the DNRF Twitter account, which was also established in 2018.

Basic research can, at times, be highly specialized and complicated to understand, and perhaps, as such, somewhat uninviting for an outside party. The new website and the DNRF Twitter account are initiatives intended to invite as many people as possible to join the experience of the many research wonders that take place in the excellent research environments that Denmark is renowned for all over the world.

The same goes for the DNRF photo competition. Photos have the ability to unseal the world of science in a surprising and inviting way by displaying its beauty or its fascinating appeal. To share with a broader audience how scientific discovery, each day, advances our knowledge of ourselves and the world we live in, the foundation held its photo competition for the second time in 2018-2019. The winning photos are shown in this report on pages 24-27.

Our efforts to communicate research are greatly inspired by our grant holders. The creativity, professionalism, and effort they put into communicating their research in imaginative, funny, and intelligent ways are a great inspiration. There are some examples of this on pages 28-30. More can be found on our website.

Excellence continued

Danish researchers are often among the world's best researchers. This prominent position has been established over many years, and it is important that Danish politicians continue to prioritize research investments, so that Denmark maintains its position as one of the leading countries when it comes to research and innovation. The DNRF welcomes the analysis made by the Danish Council for Research and Innovation Policy in 2018 on the emergence of structural career malfunctions and the underlying analysis of how the "hourglass effect" constitutes a barrier to Danish research.

The DNRF continues to focus on initiatives to relieve post-docs' challenges, a focus that the foundation initiated in 2014 and is described in the booklet *The Post-doc Challenge*. In this effort to further create awareness of, for example, possible careers in the private sector, we share a common interest with the Independent Research Fund Denmark (DFF).

The DNRF welcomes the new chair of the DFF, David Dreyer Lassen, and looks forward to continued good relations with the DFF, an organization that plays a vital role in strengthening the ranks of researchers from which the DNRF later finds its center leaders in all research areas.



Professor Jens Kehlet Nørskov (right)
Chair of the board of the DNRF

Professor Søren Peter Olesen
CEO of the DNRF



NEW DNRF CHAIR PROFESSOR JENS KEHLET NØRSKOV

January 1, 2019, the minister of Higher Education and Science, Tommy Ahlers, appointed Professor Jens Kehlet Nørskov, as the new chair of the Danish National Research Foundation.

Jens Kehlet Nørskov is internationally recognized for his research in materials physics, and his research has helped to establish a framework for the understanding of theoretical catalysis.

Jens Kehlet Nørskov is currently the Villum Kann Rasmussen Professor at the Technical University of Denmark. In his research, he focuses on how we can develop materials that can be used to catalyze processes that make the production of renewable energy far more effective.

Jens Kehlet Nørskov obtained his Ph.D. in Theoretical Physics at Aarhus University in 1979. In 1987 he became a professor in physics at the Technical University of Denmark.

From 1993-2003, he was Director of the DNRF Center for Atomic-scale Materials Physics (CAMP) at the Technical University of Denmark.

In 2010, Jens Kehlet Nørskov accepted a professorship at Stanford University where he was also the Director of the SUNCAT Center for Interface Science and Catalysis until 2018, when he returned to Denmark on a grant from the Villum Foundation.

The DNRF chair's CV can be found at the DNRF website.

> Jens Kehlet Nørskov is undoubtedly one of Denmark's most talented researchers, and someone of whom we in Denmark must be proud. He is internationally recognized for his research and is a highly competent leader. His is a strong profile that will now be at the forefront of the Danish National Research Foundation; he will work to ensure that we produce even more fundamental breakthroughs and to maintain Denmark as a leading research nation.

Tommy Ahlers, the Minister for Higher Education and Science

> I am excited to be working with the Danish National Research Foundation. The foundation may be the most important single contributor to the unique reputation that Danish research has internationally, and it is crucial that the successful work of the outgoing chair continues.

Professor Jens Kehlet Nørskov, Chair of the board of the DNRF

PROFESSOR LISELOTTE HØJGAARD, DNRF CHAIR 2013-2018



In her six years as the DNRF chair, Professor Højgaard had an immense importance for the foundation and for Danish research as a whole. She is and always has been an advocate for excellence, integrity, and professionalism in all aspects of the foundation's work, and she has worked tirelessly to ensure that DNRF grantees have the best possible conditions for carrying out their research in the same manner: always striving for excellence with indisputable integrity.

One of her first task at the DNRF was to ensure the foundation's future existence with a capital injection of 3 billion DKK. This she did by an endurance which became characteristic of her approach to the role of chair.

She is a strong advocate for gender balance and diversity in science and in general. In addition to being Head of Department of Clinical Physiology, Nuclear Medicine & PET, Rigshospitalet, Professor in Medicine and Technology at University of Copenhagen and Adj. Professor DTU, Technical University of Denmark, she was Chair of The EU Advisory Group Horizon 2020 "Health Demographic Change and Wellbeing" and member of Le Conseil d'Administration, INSERM, Institut national de la santé et de la recherche médicale, France, and parallel to her position as chair of the DNRF, she also undertook the role as chair of a task force for more women in science initiated in 2014 by minister at the time, Sofie Carsten Nielsen. She is now member of the board of directors, the Novo Nordisk Foundation, member of Die Kuratorium, Die Robert Bosch Stiftung, Germany.

In her time as chair, Professor Højgaard, or Lotte, as we all know her, led two application rounds for Centers of Excellence, and one for Niels Bohr Professorships. She also attended more than 150 follow-up meetings and kept up a close and constructive dialogue with stakeholders, among many other tasks. Her effort for the DNRF is, if anything, characterized by her own mantra for how to do research and how to support research: excellence, excellence, excellence!

> A major task was waiting when you, Lotte, took up the position as Chair of the DNRF in 2013. The government had decided that the foundation must undergo an evaluation before a new capital injection for the foundation could be negotiated. Therefore, you and I quickly began to work closely together. You came into the foundation like a breath of fresh air. With an impressive work effort during your time as Chair, you have left a significant mark on the foundation, and in an exemplary way, you have steered it through a number of challenges. A warm thank you for a prosperous and rewarding collaboration.
>
> Former Director of the DNRF, Thomas Sinkjær

> I know Liselotte Højgaard as a strong and inspiring role model for research and, in particular, for women in research. As Minister of Higher Education and Science, I was honored that Liselotte accepted the invitation to chair my committee for women in research. As chair, she proved to be not only a woman who leads the way but also a master in terms of putting research up high on the political agenda.
>
> Former Minister for Higher Education and Science, Sofie Carsten Nielsen

> Over the years, I have worked on the boards of several national and international funding organizations; so, I feel qualified to state that the working atmosphere on the DNRF board has always been outstanding. Board meetings were conducted in an open atmosphere while maintaining strict confidentiality. Lotte's commitment and encouragement set an example for all board members. Lotte is among the best-networked scientists in Europe, with an impressive range of high-level duties on the boards of leading European institutions. Thus, she was in a perfect position to convey the DNRF board's opinions to Danish ministries, rectors of universities and other foundations.
>
> All board members respected Lotte for her commitment to excellence and for her hard work for the DNRF. I admire her capacity to find so much time for the DNRF, including the follow-up meetings of DNRF centers, despite her huge responsibility of running the Department of Clinical Physiology, Nuclear Medicine & PET at Rigshospitalet. It has truly been a pleasure and an honor to work on the DNRF board chaired by Lotte.
>
> DNRF Board member Eero Vuorio





> “Lotte’s insight into Danish and European research organizations is second to none. She always sees the bigger picture, and at the same time the details do not escape her attention.
>
> CEO of the DNRF, Søren-Peter Olesen









> I met Professor Liselotte Højgaard on my second day as minister, and I'm glad that it was her who introduced me to basic research and its importance.
>
> Minister for Higher Education and Science, Tommy Ahlers



> Lotte, thanks to your dedicated and wise decisions as Chair, you are handing over a foundation in fantastic shape. Being your successor is an awe-inspiring task, and I look forward to making sure that your successful work continues.
>
> Chair of the DNRF, Jens Kehlet Nørskov



THE DNRF'S 10TH APPLICATION ROUND FOR CENTERS OF EXCELLENCE

The call for proposals for new Centers of Excellence was launched in the spring 2018, and during the spring and early summer 2018, information meetings were held with researchers at all universities.

The foundation has encouraged all fields to submit proposals.

What is a Center of Excellence?
Centers of Excellence (CoE) consist of units located at research institutions (the vast majority at universities) sharing a common idea or vision and a clearly defined set of research objectives.

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. 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 center must have a well-defined framework for cooperation. The foundation finds it essential that applicants form a joint physical community facilitating an intensive daily interaction, and centers may also choose to form partnerships with other researchers or institutions either in Denmark or abroad.

Research-based education is an important part of a center's mission because the centers serve as important training sites for the next generation of researchers, often attracting exceptional students from Denmark and abroad.

Centers are strongly encouraged to pursue collaboration with leading international researchers and to include and attract exceptional and talented employees and visitors from abroad.

The assessment and selection process
A total of 133 outline proposals were submitted by the deadline of November 1, 2018. On the opposite page can be seen how these outline proposals are distributed among research fields and institutions and the age/gender of the proposed center leader.

The proposals were assessed at a board meeting on January 30-31, 2019. Subsequently, 23 applicants have been invited to submit full proposals. During the autumn, the board will make its final decision and the new Centers of Excellence may start operating in the first quarter of, 2020.

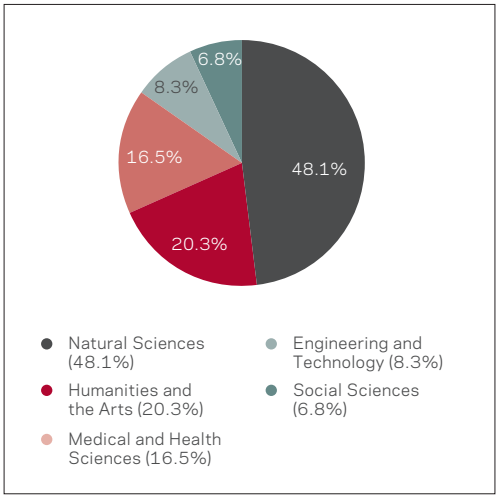
In the assessment of proposals for Centers of Excellence, the foundation emphazises:

- The research idea is ambitious and original and has the potential for real scientific breakthroughs in the relevant research field(s).
- The proposed center leader has a high standing in the international research community as well as managerial skills.
- The center includes high-quality personnel in order to establish a creative and dynamic international research environment that will provide an inspirational training ground for young researchers.
- The focus, structure, and size of the proposed center are such that the center sets the stage for scientific ventures that are not feasible within conventional funding from other sources.

When assessing the proposals, the board addresses the issue of bias.

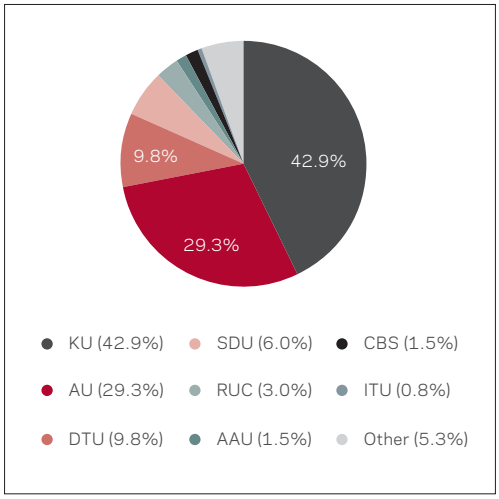
OUTLINE PROPOSALS DISTRIBUTED ON FIELDS OF RESEARCH

Primary FoR Distribution
Five main fields of research are used to categorize centers. However, this division is somewhat artificial, since 62 percent of the proposed centers are assigned to more than one category.



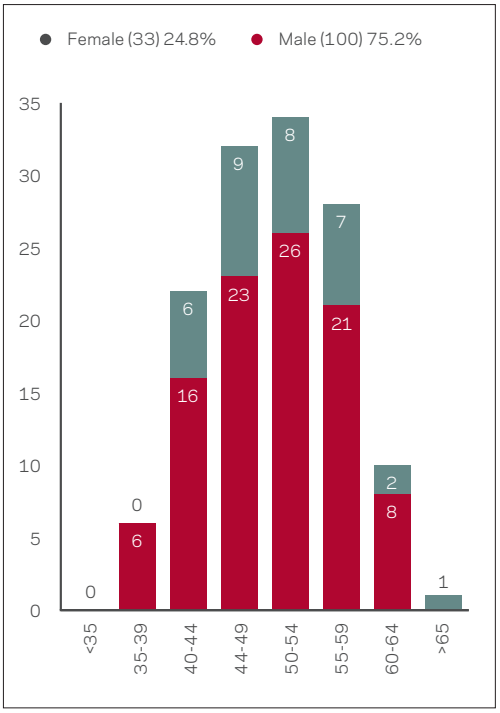
OUTLINE PROPOSALS DISTRIBUTED ON HOST UNIVERSITIES

The distribution of institutions does not differ much from that in previous rounds.



GENDER AND AGE

10th application round outline proposals distributed on age and gender
In the 10th application round, the outline proposals were distributed on gender and age as shown in the figure below. In the 8th application round the total ratio of female applicants were 20%, and in the 9th application round the total ratio of female applicants were 28%.



DIVERSITY AND EXCELLENCE IN RECRUITMENT AND CAREER DEVELOPMENT

At the DNRF's annual meeting 2018, the foundation's booklet *Diversity and Excellence in Recruitment and Career Development* set the tone for a discussion of diversity in research, and what the relationship between diversity and excellence is in relation to recruitment and career development.

To prepare the booklet, we asked the DNRF grantees about their experience with diversity in research, and we learned a lot from their answers. Some answers are included in the booklet as quotes. In the booklet, five center leaders — Anja Boisen, Mette Birkedal Bruun, Jørgen Kjems, Peter Lodahl and Eske Willerslev — offer specific examples of how a conscious strategy for increasing diversity at their centers benefits the research, as well as what the challenges in relation to diversified research groups can be.

Why strive for diversity in research?
In research, diversity is often measured by such things as the degree of internationalization, gender balance, interdisciplinarity, and, to some extent, the distribution of age in research groups. Behind these indicators of diversity lies a consensus that they have a positive effect on a research environment's level of performance. But do we know more precisely when and how? And what are the implications in relation to recruitment and career development? These are some of the questions addressed in the booklet.

Striving for diversity in research is not just a feel-good issue or a political point of view.



Rather, carrying out research requires a broad perspective on research questions and among the people who attempt to answer them. Furthermore, researchers need to gather data from a diverse composition of groups. A mouse is not just a mouse, and not all humans are 30-year old women. Likewise, internationalization is more than nationality; the relevance of internationalization largely comes from the accumulated experiences and skills that people pick up from exposure to different cultures and differences in scientific methods and research environments.

Diversity conducive to excellence — interplay of talent
For a long time, in research and elsewhere, there has been a focus on talent. The DNRF wrote a booklet in 2014 titled *Getting all talents in play*. Talent *is* key, but the catalytic

effect for the transformative research breakthrough lies in the opportunities offered by the *interplay* of diverse talent.

> Diversity, as such, is not the main factor for leveraging research, but when combined with talent, it is powerful.
>
> Professor Marja Jäättelä CoE leader CARD

As documented by the diversity researchers Professor Scott E. Page, at the University of Michigan, and Professor Katherine Phillips, at Columbia University, it's not gender, different types of personality, ethnicity, age, or income level in itself that will leverage research, but how these "diversity features" correlate with the differences in how the group members think, what dimensions they attach to the world, or simply the research question in front of them. Diverse talent is key, not diversity and talent.

> The team must consist of persons with related, but different backgrounds. This interplay of knowledge and skills not only provides a more stimulating research environment where everybody is challenged to learn new things, but also creates new fissures in smooth surfaces that are more likely to catalyze breakthroughs.
>
> Professor Jørgen Kjems, CoE leader CellPat

If it feels hard and ineffective, it might actually be working very well

"I don't think that diversity is a barrier to research breakthroughs. But I do think it takes a lot of effort and determination to utilize diversity to achieve a breakthrough." — Professor Bo Elberling, CoE leader CENPERM

Leveraging diverse talent in research groups requires training and strong leadership skills. The exercise is not to even out the differences but to facilitate a research process, which is cognitively harder to do in diverse groups than in homogeneous groups. Conflicts and misunderstandings can arise; some members of the group may use words and tools that other members have not fully mastered, and a lack of cohesiveness may occur.

Professor Katherine Phillips, from Columbia University's business school, has done studies in which she sets up cognitively diverse groups and homogeneous groups and has them solve the same problem. Her research shows that diverse groups are significantly better at solving the problem than the homogeneous groups.

Phillips finds that it is precisely the above-mentioned strains that make people more likely to share their unique information and perspectives, which, in the end, results in the better problem-solving. Handling this situation requires a strategy for how to use the disciplinary or cultural collisions constructively.

This tells us at least two things. First, there is a limit to how diverse a group can be in order for it to work. Being part of a diverse group is harder because a certain lack of cohesiveness may occur. One very important thing is to have cohesion on the goals. Diverse preferences will be an impairment to leveraging the different strengths of a diverse group. Second, some degree of diversity training is necessary to alleviate the built-in impediments related to diverse groups.

The question then is: how do you get the right dimensions?

There is no one-size-fits-all recipe on how to get the right dimensions. To the DNRF grantees, the right dimensions are best created bottom-up, as research groups are seen as singular micro-environments with different needs in terms of diversity.

DIVERSITY AND EXCELLENCE IN RECRUITMENT AND CAREER DEVELOPMENT

The Annual Meeting 2018
























DIVERSITY AND EXCELLENCE IN RECRUITMENT AND CAREER DEVELOPMENT — THE DNRF'S ANNUAL MEETING 2018



Former Chair of the DNRF, Professor Liselotte Højgaard

On Friday, November 9, the DNRF's annual meeting was held at the Royal Danish Academy of Sciences and Letters. The foundation had invited DNRF grantees and research political stakeholders from all over the country to a day of presentations and debate. The theme of this year's meeting was diversity and excellence in research.

A basis for better research

The chair at the time, Professor Liselotte Højgaard, opened the meeting. In her speech, she stated that diversity is a basis for better research and added that:

"It's not about diversity for the sake of diversity. The most important thing is to strive to do the best for research because it is ultimately also the best for society at large."

The DNRF chair also addressed diversity in terms of gender balance in research. Even though gender balance has improved in recent years, statistics from Denmark show that many more men than women end up with a career in research, although there are more women at the master's level. The statistics show that Denmark performs worse than Sweden and Finland when it comes to gender balance in research.

Ahlers: Diversity must be integrated into the core of research

"If Danish research wants to stand out from the crowd as exceptional, innovative, and groundbreaking, diversity must be integrated



Minister of Higher Education and Science, Tommy Ahlers



Head of center at the DNRF center ATLAS, Professor Susanne Mandrup



Head of the DNRF center PRIVACY, Professor Mette Birkedal Bruun

into the core of the way in which research is conducted.

We must prioritize diversity in research — not because we want to be politically correct, but because we will achieve better results."
— Minister of Higher Education and Science, Tommy Ahlers

In his talk, the minister highlighted that many of the Centers of Excellence have expanded recruitment processes to ensure that the candidates add something new to the group as a whole. He encouraged the Danish National Research Foundation and the foundation's grantees to continue on this course, to keep showing the world that diversity is a prerequisite for excellence, and to keep showing that what really drives research is sharp minds working together across fields, nationality, gender and age.

Excellence in the combination of diversity and talent

With this year's theme, the DNRF wanted to address the idea that the combination of diversity and talent can help to realize the potential of excellence.

The internationalization of Danish research has been the strongest driving force for diversity in Danish research during the last few decades. But the challenge remains that international researchers do not have the same opportunity to obtain positions in Denmark as Danish researchers have. The recruitment methods can help to solve this problem.

"The centers are magnets with the ability to attract world-class scientists, and this asset should be used to leverage the Danish research environment with the brightest and most diverse talents. And, hopefully, some of their procedures can inspire the Danish academic world at large."
— CEO of the Danish National Research Foundation, Professor Søren-Peter Olesen

Different method of recruitment

Professor and head of the DNRF center PRIVACY, Mette Birkedal Bruun, shared her experience with using a recruitment seminar to identify the right candidates. Birkedal Bruun pointed out that because the research at her center focuses on privacy within a variety of different areas, such as politics, architecture, legislation, culture, and religion, it is important that the research group be similarly diverse.

"In addition to being an inspirational process, the recruitment seminar meant that we could establish "PRIVACY's ethos" in the candidates before the actual hiring process. At the same time, the candidates became aware of who and what the center was. This resulted in dedicated and precise applications and, ultimately, an aligned core in the research group. Using the seminar for recruitment also meant that most of our new employees had already met and interacted."
— Center leader Mette Birkedal Bruun

We are naturally biased
Head of the DNRF Center for Music in the Brain (MIB), Professor Peter Vuust, illustrated that we are naturally biased in relation to our way of looking at the world using music and brain functions as an example.

Depending on where in the world we come from or where we grew up, the brain processes rhythm, for example, in different ways. A person born and raised in Europe, for example, will hear the same piece of music in a different time signature than a person born and raised in West Africa. It takes 8-9 years to change this, which says a lot about how effectively bias plays into our beliefs and judgement — in many areas, and often unconsciously.

Unconscious bias is often a determining factor in recruitment, but there are also structural conditions that stand in the way of broad international recruitment; parts of Danish legislation, ETCS requirements for foreign masters, requirements for Danish language skills and job opportunities for spouses/partners are just some of the problems.

Broad and international recruitment is challenged at Danish universities
In 2017, only 16 percent of Aarhus University's associate professors and professors were from another country. Although this number has slightly improved in recent years, and although the university has increased its focus on international recruitment to promote diversity, the progress is slow, and there is room for improvement, the rector acknowledged.



Head of the DNRF Center for Music in the Brain (MIB), Professor Peter Vuust



> "Numbers are numbers — we have a challenge. We need to find a way to change the situation.

Rector of Aarhus University, Brian Bech Nielsen



Director of Brewing Science and technology Zoran Gojkovic



Chair of the Danish Council for Research and Innovation Policy (DFiR), Professor Jens Oddershede



Anne-Marie Levy Rasmussen, director at GlaxoSmithKline

> The centers are magnets with the ability to attract world-class scientists, and this asset should be used to leverage the Danish research environment with the brightest and most diverse talents.
>
> CEO of the Danish National Research Foundation, Professor Søren-Peter Olesen

Permanent research positions are long-term and expensive investments worth several million DKK, which just illustrates the importance of thorough and broad recruitment.

That there is a problem in general with broad and international recruitment in Danish research was further stated by the chair of the Danish Council for Research and Innovation Policy (DFiR), Professor Jens Oddershede.

DFiR's analysis shows the same picture: there is room for improvement in terms of recruiting broadly and openly.

Since the annual meeting, DFiR has published its analysis in *Careers in Research*.

Balanced diversity

The presentations at the DNRF's annual meeting 2018 revealed that diversity is a broad term that goes beyond the parameters usually measured: internationalization, gender and age. A common theme of the presentations, however, was the consensus that diversity is a driver for excellence in research. However, as Zoran Gojkovic, from the Carlsberg Lab, and Professor Susanne Mandrup, head of the DNRF center ATLAS, stated, there is also a need for a common approach to realizing the potential of diverse research groups.

"The balance of diversity is about having different personalities and research skills, but a similar mindset. It is important that a group have the same ambitions and work ethic, so from that aspect, diversity is not desirable."
— Center leader Susanne Mandrup



CEO of the Danish National Research Foundation, Professor Søren-Peter Olesen

Anne-Marie Levy Rasmussen, director at GlaxoSmithKline, has extensive experience in leading talent management, recruiting and career development with a view to how diverse and gender balanced groups perform better. Her take home message was:

"The key is that it starts from the top. It requires an active focus and inclusion top-down; otherwise, there will be no change."
— Director Anne-Marie Levy Rasmussen

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 scientific discovery each day advances our knowledge of ourselves and the world we live in. We will 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 an interest in the photograph's potential as documentation and communication of scientific research.

In 2018, 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 — Christine Buhl Andersen, director at Glyptoteket; Louise Wolthers, research manager/curator at the Hasselblad Foundation; and Minik Rosing, professor at the Natural History Museum and board member at the DNRF and the Louisiana Museum of Modern Art — has chosen the following photographs for first, second, and third prize:

First Prize: *Two root nodules* by Niels Sandal
The photo is magical and not immediately open to interpretation. It is not possible to see whether the scale is at a cellular level or a cluster of galaxies, but the observer is drawn to the world that opens up in the picture. Further, the photo is very beautiful and well composed, and it gives a sense of movement and space. The scientific content is important as it shows how the scientist works with the symbiosis between bacteria and plants, which thereby can grow without addition of nitrogen fertilizer.

Second Prize: *A hedgehog getting a dental examination* by Sofie Lund Rasmussen
The photo exudes horror in contrast to the cute hedgehog we all know from the garden. There is no technological filter between the motif and the observer. It infuses respect for nature and its creatures. The photo illustrates research on the familiar nature driven by care for wild animals, here the dental health of wild hedgehogs. It illustrates both scientific curiosity and empathy with the animals we live among.

Third Prize: *Brain cancer cells on the go* by Johann Mar Gudbergsson
The photo has a visual beauty that holds a sense of movement that underpins the invasive character of the depicted cancer cells. There is a demonic dimension in the motif that communicates the seriousness of the disease and, in that, the importance of the researcher's work.

The photo shows two nodules on the root of the leguminous plant Lotus japonicus. This plant exists in a symbiosis with the earth bacteria Mesorhizobium loti. In the symbiosis the bacteria obtain carbohydrates from the plant, and the bacteria deliver fixed nitrogen to the plant. Therefore, the plant can do without nitrogen fertilizer.

The bacteria are colored with LacZ (dark blue), and the plant's cell nuclei are colored with DAPI. The nuclei are seen as light blue dots. You can see the bacteria in the young nodule and on the surface of the older nodule.

In our research group, we have isolated many of the plant genes that are necessary for symbiosis.



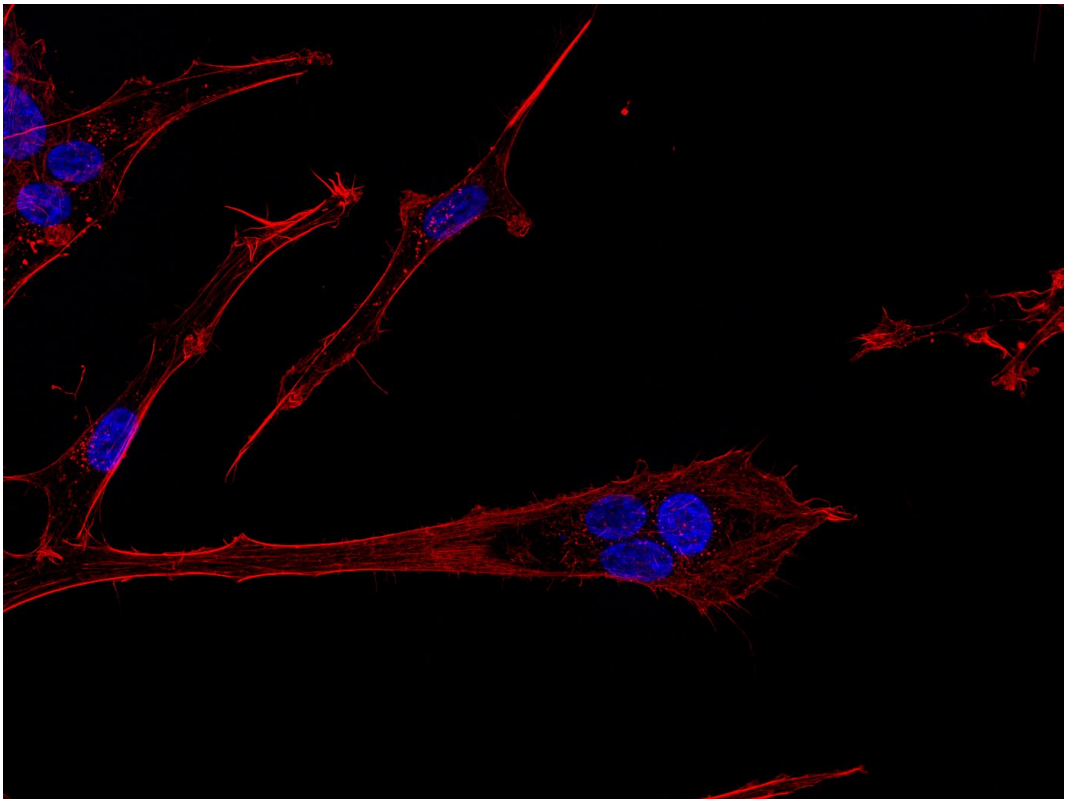
Two root nodules
Niels Sandal, Senior Researcher, Department of Molecular Biology and Genetics, Aarhus University

For my Ph.D. project about Danish hedgehogs, Danish citizens have collected nearly 700 dead hedgehogs that will be examined to attain an understanding of how the hedgehogs are doing in nature.

Among other things, the hedgehogs have received dental examinations by a veterinary specialist in dentistry (Senior Veterinarian Hanne Kortegaard) in order to get a description of the challenges the hedgehogs face in terms of dental health. If their dental health is poor, the hedgehogs will have difficulties ingesting food, and will furthermore become more susceptible to infections. The hedgehog in the photo is young and was about to lose its baby teeth when it sadly died in traffic.



A hedgehog getting a dental examination
Sophie Lund Rasmussen, Ph.D. student, Department of Biology, University of Southern Denmark



Brain cancer cells on the go
Johann Mar Gudbergsson, Ph.D. student, Department of Health Science and Technology , Aalborg University

The photo shows brain cancer cells of the type glioblastoma multiforme in movement, which are stained for DNA (blue) and actin cytoskeleton (red). The cell in the center of the photo is polynuclear, meaning that it contains multiple nuclei and therefore more DNA, which is often associated with cancer stem cells. Those are quite happy to move around, which can be seen in the photo by the long cellular process that stretches away from the blue nuclei. This shows the directions in which the cancer cell is heading.

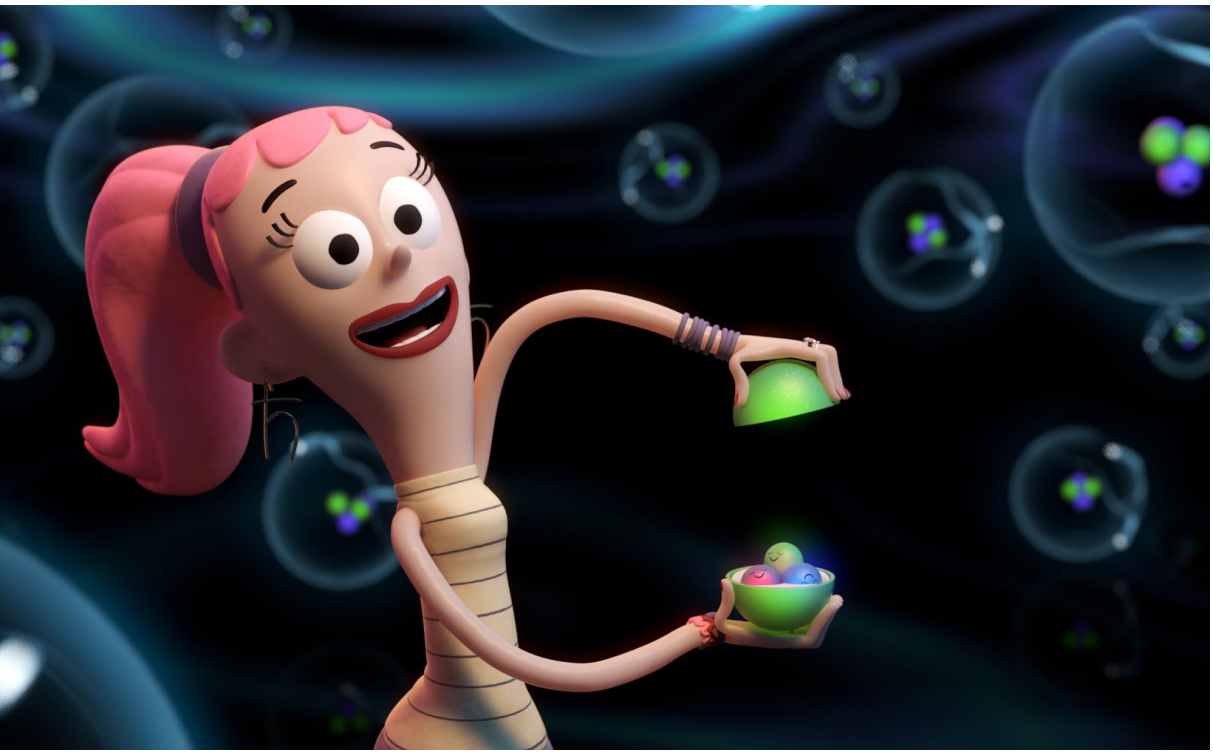
In patients with this type of brain cancer, it is the invasive cancer cells that constitutes a huge problem, because, with current treatments, they are impossible to exterminate. By invading healthy brain tissue, they are capable of using the brain's own protection mechanisms, which, among other things, prevent harmful substances from entering the brain, and thereby also part of the compounds available for treatment.

ALTERNATIVE WAYS OF COMMUNICATING RESEARCH TO THE PUBLIC

In 2018, the DNRF joined LinkedIn and Twitter and launched a new website. These efforts were undertaken as part of the board's strategy to broaden the reach of its communications. Our efforts to communicate research are greatly inspired by the creativity and professionalism that our grant holders put into communicating their research to the broader public.

Starting in the fall of 2017 and continuing until the summer of 2018, the foundation had chosen the topic *Novel ways of engaging the public in scientific results* to discuss with centers at the annual follow-up meetings.

The topic brought forward a number of imaginative, funny, and enlightening examples such



The YouTube phenomenon
Quantum Kate





Pictures from the Citizen Science project the Ant Hunt

as the animated YouTube phenomenon Quantum Kate, various Citizen Science projects, children's books and cartoons on quantum physics, events such as Astronomy on Tap, and appearances at the Danish Science Festival and Culture Night Copenhagen.

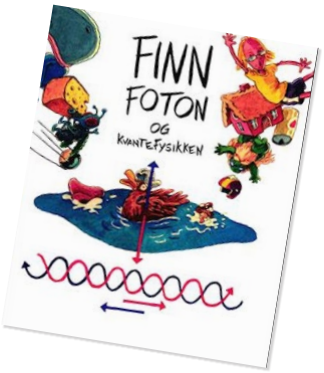
Subsequently, we have dedicated a section on the DNRF's website to sharing examples of how the DNRF grantees are engaging the broader public in their science, both as contributors to the Citizen Science projects, and as the audience at exhibitions, the readers of books, and so forth.

Engaging kids

Some examples of alternative ways of engaging the public, more specifically kids, are the Centre for Cosmology and Particle Physics Phenomenology – CP³-Origins Quantum Rascals Outreach Program (Kvantebanditterne og KvanteKarina), which introduces kids, students, and the public at large to the fascinating world of quantum physics and the mysteries embedded in this science. With these initiatives, the CP3 staff has managed to significantly increase the number of physics students at SDU and enlighten us all.

Finn Photon and Quantum Physics (Finn Foton og kvantefysikken) is a children's book written in a collaboration between writer Jan Egesborg and scientists from the Center for Macroscopic Quantum States (BigQ), Ulrich Busk Hoff and Ulrik Lund Andersen. The book explains quantum physics for children using humorous illustrations and a story about the boy Finn Photon and his experiments with the key concepts of quantum physics: superposition and entanglement.

In Greenland, school children in Qaanaaq (Thule) are involved in collecting data about snow depth to be used for their own projects and for a Ph.D. project at the Center for Permafrost (CENPERM). The Center for Macroecology, Evolution and Climate (CMEC) has conducted another Citizen Science project for kids: the ant hunt project, where kids between the ages of 3 and 11, using a kit provided by CMEC, collected ants with various foods. In total, 4,476 ants, or 22 species, were collected, helping to provide a detailed picture of what determines ant diversity.



The children's book *Finn Photon and Quantum Physics*

The lab manager at the Center for Materials Crystallography (CMC), Peter Hald, runs a chemistry show at schools where, among other things, he generates hydrogen from electrolysis of water and fires a cannon in which he collects the hydrogen. He has developed an advanced, self-built automatic marshmallow-roasting device that is very popular in the chemistry shows.

At the Lego House, all guests get their own unique combination of six 8-stud bricks for which Søren Eilers from the Center for Symmetry and Deformation (SYM) calculated that there are more than 915 million different combinations.

Engaging adults

In a Citizen Science study, citizens volunteer to partner with scientists and engage in different ways to answer scientific questions. CMEC has organized several projects, such as Biodiversity Now, NaturCheck, The Sound of Denmark, the ant hunt, Fungal Atlas, Bird Population monitoring, and the Insect mobile. Common to the projects are the educational aspects and, often, in addition to the engagement factor, the projects have relevance for policy development. More than 36,000 people have contributed to monitoring biodiversity with more than 620,000 observations using the NaturCheck app. Ten undescribed species and 200 new species for Denmark have been detected with the Fungal Atlas project, with more than 620,000 observations.

The insect mobile is registering the flying insect fauna.



Picture from the exhibition *The Moon — From Inner Worlds to Outer Space* at the Louisiana Museum of Modern Art.

For educational purposes as well as leisure time, the Stellar Astrophysics Centre (SAC) has arranged Astronomy on Tap, an event that started in New York some five years ago, where scientists, educators, writers, and artists discuss how they explore the universe — at local bars.

Martin Bizzarro, from the Center for Star and Planet Formation (STARPLAN), has contributed to the moon exhibition at the Louisiana Museum of Modern Art, and Niels Bohr Professor Anna Tsing has created an exhibition at the Moesgaard Museum about the Anthropocene age.



The insect mobile



REPORT FROM CENTER LEADER RETREAT ON THE TOPIC OF RESEARCH INTEGRITY

In 2018, the DNRF dedicated its annual retreat for grant holders to the topic research integrity. To present and address the many facets of the Paolo Macchiarini case from the Karolinska Institute, the DNRF had invited retired President of the Swedish Supreme Administrative Court Sten Heckscher, and Professor Sven-Erik Dahlen, who chaired the Coordination and monitoring committee that was appointed to support and coordinate the implementation of the action plan which had been drafted at the Karolinska Institute in the wake of the Macchiarini scandal.

Further, the DNRF had invited Jørn Hounsgaard, who was appointed named person at the Faculty of Health at the University of Copenhagen to talk about the new Danish system with the 'Practice Committees' (praksis udvalg) and 'The Danish Committee on Research Misconduct' (Nævnet for Videnskabelig Uredelighed).

The talks gave rise to a fruitful debate about issues such as the importance of thorough recruitment processes, handling of grey areas, the importance of the right culture and integration of a conscious approach to research integrity into the research group's day-to-day work.

The DNRF has collected a Worth knowing guide on research integrity from a Danish perspective to be used by all Danish scientists.

The guide can be found at the foundation's website.



ONGOING ACTIVITIES

CENTERS OF EXCELLENCE ESTABLISHED IN 2009/2010

Center on Autobiographical Memory Research (Con Amore)

Location:	Aarhus University
Center leader:	Professor Dorthe Berntsen
Total grant:	84.1 million DKK



Center for Cosmology and Particle Physics Phenomenology (CP³-Origins)

Location:	University of Southern Denmark
Center leader:	Professor Francesco Sannino
Total grant:	80.0 million DKK



Center for Particle Physics (Discovery)

Location:	University of Copenhagen
Center leader:	Professor Peter H. Hansen
Total grant:	80.0 million DKK



Centre for Symmetry and Deformation (SYM)

Location:	University of Copenhagen
Center leader:	Professor Jesper Grodal
Total grant:	90.5 million DKK



Center for Materials Crystallography (CMC)

Location:	Aarhus University
Center leader:	Professor Bo Brummerstedt Iversen
Total grant:	105.2 million DKK



Center for GeoGenetics

Location:	University of Copenhagen
Center leader:	Professor Eske Willerslev
Total grant:	101.0 million DKK



Centre for Quantum Geometry of Moduli Spaces (QGM)

Location:	Aarhus University
Center leader:	Professor Jørgen Ellegaard Andersen
Total grant:	89.3 million DKK



Center for Macroecology, Evolution and Climate (CMEC)

Location:	University of Copenhagen
Center leader:	Professor Carsten Rahbek
Total grant:	112.3 million DKK



Center for Star and Planet Formation (STARPLAN)

Location:	University of Copenhagen
Center leader:	Professor Martin Bizzarro
Total grant:	82.6 million DKK



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 (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:	64.4 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



Center for Vitamins and Vaccines (CVIVA)

Location:	Statens Serum Institut
Center leader:	Professor Christine Stabell Benn
Total grant:	58.0 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:	65.0 million DKK



Center for Stem Cell Decision Making (StemPhys)

Location:	University of Copenhagen
Center leader:	Professor Lene Oddershede
Total grant:	60.0 million DKK



Center for Music in the Brain (MIB)

Location:	Aarhus University
Center leader:	Professor Peter Vuust
Total grant:	52.2 million DKK



Centre for Carbon Dioxide Activation (CADIAC)

Location:	Aarhus University
Center leader:	Professor Troels Skrydstrup
Total grant:	60.0 million DKK



Center for Urban Network Evolutions (UrbNet)

Location:	Aarhus University
Center leader:	Professor Rubina Raja
Total grant:	65.0 million DKK



Center for Bacterial Stress Response and Persistence (BASP)

Location:	University of Copenhagen
Center leader:	Professor Kenn Gerdes
Total grant:	50.0 million DKK



Center for Neuroplasticity and Pain (CNAP)

Location:	Aalborg University
Center leader:	Professor Thomas Graven-Nielsen
Total grant:	60.2 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:	56.0 million DKK



Center for Silicon Photonics for Optical Communications (SPOC)

Location:	Technical University of Denmark
Center leader:	Professor Leif Katsuo Oxenløwe
Total grant:	59.0 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 Jäättelä
Total grant:	50.0 million DKK



Center for Personalized Medicine Managing Infectious Complications in Immune Deficiency (PERSIMUNE)

Location:	Rigshospitalet
Center leader:	Professor Jens Lundgren
Total grant:	60.0 million DKK



CENTERS OF EXCELLENCE ESTABLISHED IN 2017/2018

Center for Proteins in Memory (PROMEMO)

Location:	Aarhus University
Center leader:	Professor Anders Nykjær
Total grant:	62.0 million DKK



Center for Economic Behavior and Inequality (CEBI)

Location:	University of Copenhagen
Center leader:	Professor Claus Thustrup Kreiner
Total grant:	57.0 million DKK



Center for Cellular Signal Patterns (CellPAT)

Location:	Aarhus University
Center leader:	Professor Jørgen Kjems
Total grant:	61.0 million DKK



Center for Electromicrobiology (CEM)

Location:	Aarhus University
Center leader:	Professor Lars Peter Nielsen
Total grant:	56.0 million DKK



Center for Microbial Secondary Metabolites (CeMiSt)

Location:	Technical University of Denmark
Center leader:	Professor Lone Gram
Total grant:	58.0 million DKK



Center for Privacy Studies (PRIVACY)

Location:	University of Copenhagen
Center leader:	Professor Mette Birkedal Bruun
Total grant:	50.0 million DKK



Center for Hybrid Quantum Networks (Hy-Q)

Location:	University of Copenhagen
Center leader:	Professor Peter Lodahl
Total grant:	62.0 million DKK



Cosmic Dawn Center (DAWN)

Location:	University of Copenhagen
Center leader:	Professor Sune Toft
Total grant:	66.0 million DKK



Center for Functional Genomics and Tissue Plasticity (ATLAS)

Location:	University of Southern Denmark
Center leader:	Professor Susanne Mandrup
Total grant:	65.0 million DKK



Center for Macroscopic Quantum States (BigQ)

Location:	Technical University of Denmark
Center leader:	Professor Ulrik Lund Andersen
Total grant:	63.0 million DKK



National Science Foundation (NSF)

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

NIELS BOHR PROFESSORSHIPS ESTABLISHED IN 2013

Professor Anna Lowenhaupt Tsing, University of California, Santa Cruz

Location:	Department of Culture and Society, Aarhus University
Total grant:	29.4 million DKK



Professor David Needham, Duke University

Location:	Department of Physics, Chemistry and Pharmacy, University of Southern Denmark
Total grant:	28.3 million DKK



Professor Lars Hesselholt, Nagoya University

Location:	Department of Mathematical Sciences, University of Copenhagen
Total grant:	30.0 million DKK



Professor Charles Lesher, University of California, Davis

Location:	Department for Geoscience, Aarhus University
Total grant:	30.0 million DKK



Professor Jaan Valsiner, Clark University

Location:	Department of Communication and Psychology, Aalborg University
Total grant:	20.0 million DKK



Professor Subir Sarkar, University of Oxford

Location:	Niels Bohr Institute, University of Copenhagen
Total grant:	28.7 million DKK

NIELS BOHR PROFESSORSHIPS ESTABLISHED IN 2016/2017



Professor Rita Felski, University of Virginia

Location:	Department for the Study of Culture, University of Southern Denmark
Total grant:	28.0 million DKK



Professor Matthew Collins, The University of York

Location:	Natural History Museum of Denmark, 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:	Department of Physics and Astronomy, Aarhus University
Total grant:	30.0 million DKK



Professor Morten Bennedsen, INSEAD

Location:	Department of Economics, University of Copenhagen
Total grant:	29.9 million DKK



Professor Professor Enrico Ramirez-Ruiz, University of California

Location:	Niels Bohr Institute, University of Copenhagen
Total grant:	30.0 million DKK

COURSE ACTIVITIES FOR CENTER LEADERS/OUTREACH PROGRAM FOR CENTERS

Total grant:	11.2 million DKK

TOTAL ASSETS AND RETURN ON INVESTMENT

In 2018, the foundation realized a return on investment of minus -3.1%, and total return on investment was minus 191.7 million DKK. Broken down into asset classes, return on equities amounted to minus 179.1 million DKK and return on the fixed income portfolio amounted to minus 12.6 million DKK. The administrative expenses amounted to 13.2 million DKK in 2018.

Total assets at the end of 2018 were 5,471 million DKK, compared to total assets of 6,088 million DKK at the end of 2017. The foundation distributed 409 million DKK in 2018, which is lower than the maximum distribution level, according to the updated act, of 456 million DKK (in 2018 prices).

The strategic asset allocation was unchanged during 2018, with an allocation to bonds and equities of, respectively, 65% and 35%.

Total return
Calculated as a time-weighted return, the total return on investment in 2018 was minus 3.1%, which was as the benchmark-return of minus 3.3%.

From a five-year perspective, covering the period 2014 to 2018, the foundation's return was 4.2% p.a. which is close to the annual benchmark return of 4.1%.

Return on investment	2018	2017	2016	2015	2014
Bonds and cash, million DKK	-12.6	128.6	218.6	-44.0	182.7
Equities, million DKK	-179.1	293.4	192.5	1.1	153.8
Total return, million DKK	-191.7	422.0	411.2	-42.9	336.4
Foundation return, % [1)]	-3.1	7.1	6.8	1.5	9.3
Benchmark, %	-3.3	6.9	6.9	1.9	8.7
Foundation 5 years p.a. return, % [2)]	4.2	6.0	6.7	6.4	7.9
Benchmark 5 years p.a. return, % [2)]	4.1	6.0	6.6	6.2	7.6

1) The annual return on the total investment is a weighted average of each portfolio's return.
2) The geometric mean.

Return on equities
The foundation's equity portfolio consists of a combination of equities in developed countries and emerging markets countries. 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 developed markets equity portfolio was minus 3.6% compared to a benchmark return of minus 3.9%. The developed markets equity portfolio is invested in the following passively managed funds: Danske Invest Global Indeks, klasse DKK W d, Northern Trust World Custom ESG Equity Fund, Northern Trust World Custom ESG EUR hedged Equity Fund, and Nykredit Invest Globale A UIAB.

Eighty percent of the exposure to USD and JPY in the developed markets equity portfolio is hedged to DKK except for the investment in the Northern Trust World Custom ESG EUR hedged Equity Fund, where all the currency exposure is hedged to EUR. Both the USD and the JPY were strengthening against the DKK and EUR during 2018, which resulted in a negative return from the currency hedging. The return on the developed markets equity portfolio, including the currency hedge, was minus 8.3%.

The emerging markets equity portfolio totaled 3.9% of total assets during the year. This investment takes place through the mutual fund Danske Invest Global Emerging Markets I. The return on the emerging markets equity portfolio in 2018 was minus 8.9%, which is significantly better compared to the benchmark (MSCI emerging markets) return of minus 10.1%. The reasons for the overperformance was due to strong stock selection and an underweight to Chinese stocks.

Return on bonds
Danish government and mortgage bonds represent the largest part of the fund's asset, and 37% of the strategic allocation is managed by Nykredit Asset Management (Nykredit). The Danish bond portfolio gave a return of 1.5%, which was higher than the benchmark of 1.2%. The overweight of callable mortgage bonds in the bond portfolio added to the performance of the portfolio relative to the benchmark. Although spreads on the callable bonds widen through 2018, but this was more than compensated via the higher yield on the callable mortgage bonds compared to government bonds and other non-callable bonds.

The strategic allocation to global inflation-linked bonds is 11% and is managed by Danske Asset Management. The portfolio's return in 2018 was minus 2.3% compared to the benchmark return of minus 2.2%.

The return on the European corporate bond portfolio in 2018 was minus 1.1% versus the benchmark return of minus 1.6%. The allocation to European corporate bonds is 10% and

the benchmark is Barclays Capital Euro Major Corporate Index (hedged to DKK). The portfolio is managed by Danske Asset Management. The outperformance was mainly due to a good security selection and to some extend underweight of risk, which was an advantage in the negative market.

The US high-yield bond portfolio represents 7% of the strategic allocation and the portfolio is managed by Columbia Threadneedle. During 2018, the high-yield bond portfolio gave a return of minus 6.6%, which is lower than the benchmark return of minus 5.1%. The benchmark for the high-yield portfolio is ML US High-Yield Bonds, Constrained (hedged to DKK). The underperformance was mainly due to bad security selection and to some extend to a poor industry allocation.

Responsible investment policy
All the foundation's equity and high-yield and investment grade bond portfolios have implemented responsible investment policy. To keep costs down, the foundation often makes its investments in mutual funds together with other investors. As a minority investor in a mutual fund, the foundation cannot decide the mutual fund's responsible investment policy, however it is crucial that there is a policy within this area. The foundation's investments in government and mortgage bonds are not covered by a responsible investment policy.

In general, the portfolio managers' goal is to invest in companies that fulfill recognized norms and standards for human rights, arms production, working conditions, the environment, and anti-corruption. The portfolio managers' responsible investment policy is often based on some of the following internationally recognized norms and standards:

- UN Global Compact (human and labor rights, environment, and anti-corruption)
- UN Guiding Principles on Business and Human Rights
- OECD Guidelines for Multinational Enterprises
- The ILO conventions on labor rights (child labor, discrimination, forced labor, etc.)
- Weapons-related conventions (cluster munitions, anti-personnel landmines, biological/chemical weapons, etc.).

The mutual fund's responsible investment policy varies. For example, some of the DNRF's mutual fund/portfolio managers do not invest in companies involved in the production of tobacco, while others do. An overview of the portfolio managers' responsible investment policies is in the table below.

Portfolio/mutual fund	Danske Invest	Nykredit Invest	Northern Trust	Danske Invest	SEB Invest	Danske AM
Asset type	Equities	Equities	Equities	Emerging markets equities	High-yield bonds	Investment grade bonds
UN Global Compact	✓	✓	✓	✓	✓	✓
UN Guiding Principles on Business and Human Rights	✓	✓	-	✓	✓	✓
OECD Guidelines for Multinational Enterprises	✓	✓	-	✓	✓	✓
The ILO conventions on labor rights	✓	✓	-	✓	✓	✓
Weapons-related conventions	✓	✓	✓	✓	✓	✓
Exclude tobacco producers	-	-	✓	-	-	✓
Exclude producers of nuclear weapons and depleted uranium weapons	✓[1]	✓[2]	✓	✓	✓	-
Exclusion of companies with high extraction of thermal coal	✓	✓[3]	-	✓	✓	✓
Exercises voting privileges	✓	✓	✓	-	N/A	N/A
Engages	✓	✓	✓	✓	N/A	N/A

1) Danske Invest does not automatically exclude depleted uranium weapons but does exclude companies directly involved in R&D, the production of nuclear warheads, or related activities.
2) Nykredit Invest excludes companies in violation with the Non-Proliferation-Treaty.
3) Nykredit Invest exclude several companies involved in production of thermal coal producers, however not all companies are excluded.

Investment committee
In 2018 the board decided to establish an investment committee. The investment committee's tasks are to give the board recommendations about the investment strategy, risk management, portfolio managers, the responsible investor policy and the forecast. The members of the investment committee are CIO Peter Johansen (chair), Professor Peter Løchte Jørgensen and CEO Torben Möger Pedersen. The committee held three meetings in 2018.

THE BOARD

In 2018, the board conducted six regular meetings and was represented at 28 follow-up meetings with the centers. The composition of the board is as follows:



Jens Kehlet Nørskov (New Chair)
Professor, Technical University of Denmark. Appointed by the Minister for Higher Education and Science (01.01.19-31.12.24)



Morten Overgaard Ravn (Deputy Chair)
Professor, Department of Economics, University College London. Nominated by the Danish Rectors' Conference (01.01.16-31.12.19)



Minik Thorleif Rosing
Professor, Natural History Museum of Denmark, University of Copenhagen. Nominated by the Joint Committee of Directors at the Governmental Research Institutes (01.01.16-31.12.19)



Christina Moberg
Professor, Royal Institute of Technology, KTH, Stockholm. Nominated by the Independent Research Fund Denmark (01.11.13-30.11.21)



Clivia M. Sotomayor Torres
Professor, Catalan Institute of Nanoscience and Nanotechnology. Nominated by the Danish Academy of Technical Sciences (01.09.2018-30.11.2021)



Bart De Moor
Professor, KU Leuven. Appointed by the Minister for Higher Education and Science (01.11.13-30.11.21)



Jesper Ryberg
Professor, Ethics and Philosophy of Law, Roskilde University. Nominated by the Royal Danish Academy of Sciences and Letters (01.01.16-31.12.19)



Anne Scott Sørensen
Professor, Department for the Study of Culture, University of Southern Denmark. Nominated by the Independent Research Fund Denmark (01.01.16-31.12.19)



Eero Vuorio
Professor, University of Turku, Finland. Nominated by the Independent Research Fund Denmark (01.11.13-30.11.21)



Liselotte Højgaard (Chair)
Professor, University of Copenhagen, Head of Department, Rigshospitalet. Appointed by the Minister for Higher Education and Science (01.01.13-31.12.18)

Professor Liselotte Højgaard's six years term as chair of the board ended 2018. Professor Jens K. Nørskov at the Technical University of Denmark is new chairman from January 1, 2019 for a six-year periode until the end of 2024.

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 2018.

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, 2018 and of the results of its operations for the financial year January 1 to December 31, 2018. 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 28, 2019.

Søren-Peter Olesen
CEO

Board members:

Jens Kehlet Nørskov Chair	Morten Overgaard Ravn Deputy Chairman	Minik Thorleif Rosing
Christina Moberg	Bart De Moor	Jesper Ryberg
Anne Scott Sørensen	Eero Vuorio	Clivia M. Sotomayor Torres

INDEPENDENT AUDITOR'S REPORT

TO THE BOARD OF THE DANISH NATIONAL RESEARCH FOUNDATION

REPORT ON THE FINANCIAL STATEMENTS

Opinion
We have audited the financial statements of the Danish National Research Foundation for the financial year 01.01.2018 - 31.12.2018, which comprise the accounting policies, income statement, balance sheet and notes. 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 at 31.12.2018 and of the results of the Foundation's operations for the financial year 01.01.2018 - 31.12.2018 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 as well as the standards on public auditing as the audit was conducted in accordance with the provisions of section 9(2) of the Danish Auditor General's Act. 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. We are independent of the Foundation in accordance with the International Ethics Standards Board of Accountants' Code of Ethics for Professional Accountants (IESBA Code) and the additional requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these 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 as well as the standards on public auditing, 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 as well as the standards on public auditing, 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.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

Statement on compliance audit and performance audit
Management is responsible for the transactions covered by the financial statements complying with the appropriations granted, statutes, other regulations, agreements and usual practice,

and for ensuring that sound financial management is exercised in the administration of the funds and in the operation of the activities covered by the financial statements.

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 standards on public auditing. In our compliance audit, we test selected subject matters to obtain reasonable assurance about whether the transactions covered by the financial statements comply with appropriations granted, statutes, other regulations, agreements 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 in the operation of the 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.

We have no material critical comments to report in this respect.

Copenhagen, 28.03.2019

Deloitte
Statsautoriseret Revisionspartnerselskab
Business Registration No 33 96 35 56

Jens Sejer Pedersen
State-Authorised Public Accountant
Identification No. (MNE) 14986

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
Under the Danish Appropriation Act, more funds have been made available to the foundation for distribution. The funds are recognized when transferred to the foundation.

Distribution
Funds distributed are expensed in the financial year in which they are distributed. Funds are distributed as research plans are implemented; see note 16b. Time lags may exist to a limited extent.

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.

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.

Distribution obligations
Distributions by the foundation mainly take the form of multiannual total grants awarded over a number of years as research projects are completed; however, grants usually are not awarded for more than a six-year period.

The distribution obligations that can be accommodated by equity and budgeted earnings are not provided for in the balance sheet. Instead, distribution obligations are disclosed in notes 16a and 16b stating estimated residual amounts to be distributed.

Income tax
The foundation is not liable to tax.

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 re quirement 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	2018	2017
Return on investment			
Realized gains and losses, bonds		73,870,242	71,283,229
Unrealized gains and losses, bonds		-86,330,728	57,319,978
Realized gains and losses, equities		11,194,997	103,399,425
Unrealized gains and losses, equities		-190,300,176	190,022,531
Interest, bank deposits		-138,756	-14,220
Return on investment, total		-191,704,421	422,010,943
Other receipts, net	1	0	477,232
Costs			
Distributions	16	-409,291,437	-384,769,460
Custody and bank fees etc.	2	-3,936,163	-3,964,071
Salaries etc,	3	-8,742,941	-7,415,697
Office expenses	4	-650,692	-528,975
Premises	5	-1,008,984	-1,030,101
Accountant/attorney remuneration etc.	6	-1,735,527	-860,330
External expenses, external research activities	7	-369,425	-682,491
Other costs	8	-527,892	-577,222
Costs, total		-426,263,061	-399,828,347
Result before depreciation		-617,967,482	22,659,828
Depreciation	9	-170,101	-162,030
Result for the year		-618,137,583	22,497,798

BALANCE SHEET
AS OF DECEMBER 31

	Note	2018	2017
ASSETS			
Fixed assets			
Tangible fixed assets	10		
Leasehold improvements		85,402	196,443
Office equipment and furniture		124,142	142,844
		209,544	339,287
Fixed asset investments	11		
Deposits		243,860	240,784
		243,860	240,784
Fixed assets, total		453,404	580,071
Current assets			
Receivables			
Accrued interest		16,759,090	18,193,290
Other receivables		901,473	885,941
Deferred charges		126,541	67,990
		17,787,104	19,147,221
Liquid assets			
Securities, bonds	12	3,607,080,612	3,926,809,854
Securities, equities	13	1,832,149,579	2,128,561,666
Bank deposits	14	13,261,609	13,231,043
		5,452,491,800	6,068,602,563
Current assets, total		5,470,278,904	6,087,749,784
ASSETS, TOTAL		5,470,732,308	6,088,329,855
EQUITY AND LIABILITIES			
Net capital	15	5,468,537,144	6,086,674,727
Payables			
Short-term payables			
Payables and back costs		2,195,163	1,655,128
Payables, total		2,195,163	1,655,128
EQUITY AND LIABILITIES, TOTAL		5,470,732,308	6,088,329,855
Distribution obligations	16		
Contingent liabilities	17		

NOTES

	2018	2017
1 OTHER RECEIPTS, NET		
Private donation	0	500,000
Market value adjustment, other investments, see note 11	0	-22,768
Other receipts, total	0	477,232
2 CUSTODY AND BANK FEES, ETC.		
Bonds	3,740,037	3,804,526
Equities	175,352	140,669
Fees, portfolio managers	3,915,389	3,945,195
Bank	6,318	7,209
Other	14,456	11,667
Custody and bank fees, total	3,936,163	3,964,071
3 SALARIES ETC.		
CEO and board members	2,783,757	2,678,809
Salaries, other employees	5,388,884	4,156,723
Wage reimbursement	-195,487	-151,170
Pension costs	708,186	678,982
Danish Labor Market Supplementary Pension Scheme (ATP)	57,601	52,353
Salaries etc., foundation staff, total	8,742,941	7,415,697
Average staff number, accounting year	11	9
4 OFFICE EXPENSES		
Office supplies	32,906	30,428
Postage and freight	11,280	11,164
Telephone, Internet	141,440	127,916
Minor acquisitions	164,719	73,507
Journal, books, etc.	26,360	28,285
Servicing contracts etc.	273,987	257,675
Office expenses, total	650,692	528,975

	2018	2017
5 PREMISES		
Rent of office	731,580	722,352
Electricity, heating	76,687	90,158
Cleaning	151,049	145,210
Repairs and maintenance	49,668	72,381
Premises, total	1,008,984	1,030,101
6 ACCOUNTANT/ATTORNEY REMUNERATION ETC.		
Accountant remuneration, Deloitte	221,250	230,000
Accountancy consultation, Deloitte	0	-11,250
Attorney's remuneration	323,938	114,125
Other consultancy services	1,190,339	527,455
Accountant/attorney remuneration etc., total	1,735,527	860,330
7 EXTERNAL EXPENSES, RESEARCH ACTIVITIES		
Peer review expenses	0	225,470
Preparation of publications	240,148	160,501
Research presentations, meetings etc.	83,960	242,300
European Science Foundation, Science Europe membership fee	45,317	54,220
External expenses, research activities, total	369,425	682,491
8 OTHER EXPENSES		
Travelling and accomodation	271,568	270,940
Advertising	16,481	12,306
Entertainment expenses, gifts	4,166	3,131
Courses	41,969	87,097
Insurance	110,943	86,350
Cost of staff and board	82,765	117,398
Other expenses, total	527,892	577,222
9 DEPRECIATION		
Leasehold improvements, see note 10	111,041	111,042
Office furniture and equipment, see note 10	59,060	50,988
Depreciation, total	170,101	162,030

	Leasehold improvements	Office equipment and furniture	Total
10 TANGIBLE FIXED ASSETS			
Acquisition cost, January 1, 2018	2,100,942	1,234,963	3,335,905
Additions		40,358	40,358
Disposals			0
Acquisition cost, December 31, 2018	2,100,942	1,275,321	3,376,263
Depreciation, accumulated, January 1, 2018	-1,904,499	-1,092,119	-2,996,618
Depreciation for the year	-111,041	-59,060	-170,101
Reversed depreciation, disposals for the year			0
Depreciation, accumulated, December 31, 2018	-2,015,540	-1,151,179	-3,166,719
Book value at year-end	85,402	124,142	209,544

	Deposits	Total
11 FIXED ASSET INVESTMENTS		
Acquisition cost, January 1, 2018	240,784	240,784
Additions	3,076	3,076
Disposals		0
Acquisition cost, December 31, 2018	243,860	243,860
Value adjustments, accumulated, January 1, 2018		0
Value adjustment for the year		0
Reversed value adjustments, disposals for the year		0
Value adjustments, accumulated, December 31, 2018	0	0
Book value, at year-end	243,860	243,860

	2018	2017
12 SECURITIES, BONDS		
Asset classes		
Danish bonds	2,072,331,513	2,241,143,639
European corporate bonds	554,434,445	591,986,507
Global inflation-linked bonds	616,798,177	663,931,600
US High yield bonds *	363,516,477	429,748,108
Bonds, total	3,607,080,612	3,926,809,854

* Option adjusted duration, December 31, 2018: 4.17 (December 31, 2017: 5.72)

Danish bonds
Distribution by type of security:

Mortgage bonds	2,072,331,513	2,236,721,339
Government bonds	0	4,422,300
	2,072,331,513	2,202,616,767

Option adjusted duration December 31, 2018: 5.05 (December 31, 2017: 4.35)

	2018	2017

12 SECURITIES, BONDS

European corporate bonds
Distribution by rating category and forward currency contract:

AA	9,535,577	20,919,497
A	159,942,672	205,283,675
BBB	384,915,759	366,416,817
Forward currency contracts, EUR	-540,710	-406,630
Collateral, EUR	581,147	0
Interest rate futures, EUR	0	-226,852
	554,434,445	591,986,507

Rating category according to Standard & Poor's Long-Term Credit Rating.
Option adjusted duration, December 31, 2018: 4.97 (December 31, 2017: 5.15).

Global inflation-linked bonds
Distribution by country and forward currency contract:

	2018	2017
Denmark	2,929,880	2,941,721
Canada	35,182,640	42,227,455
Germany	14,782,300	6,472,440
France	108,623,309	91,763,708
Great Britain	56,447,462	72,451,732
Sweden	0	13,563,393
USA	385,318,385	417,696,955
New Zeeland	2,486,986	2,452,757
Australia	9,127,601	9,575,259
Forward currency contracts, CAD	1,196,436	-119,899
Forward currency contracts, EUR	-116,521	-62,176
Forward currency contracts, GBP	664,127	-297,403
Forward currency contracts, SEK	14	-101,223
Forward currency contracts, USD	-351,609	5,652,562
Forward currency contracts, NZD	92,444	-81,971
Forward currency contracts, AUD	414,723	-203,710
	616,798,177	663,931,600

Adjusted duration, December 31, 2018: 2,61 (December 31, 2017: 2.67).

	2018	2017
13 SECURITIES, EQUITIES		
Nykredit Invest Globale A UIAB	128,528,259	156,351,037
NT World Custom ESG Equity Fund	493,283,315	569,785,919
NT World Custom ESG EUR HDG EQY	493,950,031	588,867,895
Danske Invest Global Indeks, klasse DKK W d	497,978,799	562,964,722
Danske Invest Global Emerging Markets I	217,945,476	242,604,724
Forward currency contracts and swaps, JPY	-1,761,178	1,073,175
Forward currency contracts and swaps, USD	2,224,877	6,914,194
Equities, total	1,832,149,579	2,128,561,666
14 LIQUID ASSETS		
Cash	3,911	5,038
Current bank accounts	731,879	1,500,270
Portfolio accounts	12,525,819	11,725,735
Liquid assets, total	13,261,609	13,231,043
15 NET CAPITAL		
Net capital, January 1	6,086,674,727	6,064,176,929
Result for the year	-618,137,583	22,497,798
Net capital, December 31, total	5,468,537,144	6,086,674,727

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Centers established in 1993/94							
1.	Søren Kierkegaard Research Center	27,739	61,654		89,393		-
2.	The Danish Epidemiology Science Center	41,932	54,152		96,084		-
3.	Center for Labour Market and Social Research	25,127	1,293		26,420		-
4.	Theoretical Astrophysics Center	47,340	40,045		87,385		-
5.	Center for Atomic Physics	53,999	45,899		99,898		-
6.	Center for Atomic-Scale Materials Physics	39,595	50,139		89,734		-
7.	Center for Basic Research In Computer Science	32,608	15,925		48,533		-
8.	International Research Centre for Computational Hydrodynamics	43,950	4,586		48,536		-
9.	Danish Center for Remote Sensing	50,742			50,742		-
10.	Danish Lithosphere Center	71,874	101,653		173,527		-
11.	Danish Center for Experimental Parasitology	48,013	53,216		101,229		-
12.	Center for Biological Sequence Analysis	25,271	35,000		60,271		-
13.	Center for Biomolecular Recognition	35,080			35,080		-
14.	The Copenhagen Muscle Research Center	72,326	85,078		157,404		-
15.	Center for Sensory-Motor Interaction	25,000	64,329		89,329		-
16.	Center for Sound Communication	22,713	25,175		47,888		-
17.	Center for Crystallographic Studies	25,451	30,127		55,578		-
18.	Center for Enzyme Research	22,472	809		23,281		-
19.	Center for Gene Regulation and Plasticity of Neuro-Endocrine Network	37,571	2,442		40,013		-
20.	Center for Semiotic Research	12,741	5,000		17,741		-
21.	Copenhagen Polis Center	7,991	10,714		18,705		-
22.	Center for Maritime Archaeology	40,364	50,047		90,411		-
23.	Economic Policy Research Unit	17,921	19,674		37,595		-
To be carried forward		827,820	756,957	0	1,584,777	0	0

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		827,820	756,957	0	1,584,777	0	0
Other activities							
24.	The National Center for Register-Based Research	11,573	15,000		26,573		-
25.	Statistics Denmark, Research Unit Aarhus	7,090	3,122		10,212		-
26.	Research Machine, Statistics Denmark	1,357			1,357		-
27.	ERAS (Danish Data Archives)	6,401			6,401		-
28.	Research School, Aarhus	95,074			95,074		-
29.	Research School, Aalborg	39,572			39,572		-
30.	Danish National Birth Cohort	17,990			17,990		-
Centers established in 1997/98							
31.	Center for Solid Phase Organic Combinatorial Chemistry	20,527	19,505		40,032		-
32.	Center for Catalysis	24,986	29,901		54,887		-
33.	Center for Plant-Microbe Symbiosis	24,119			24,119		-
34.	Center for Demographic Research	34,987			34,987		-
35.	The Danish Center for Earth System Science	50,189	9,098		59,287		-
36.	Network in Mathematical Physics and Stochastics	23,519	12,800		36,319		-
37.	Center for Molecular Plant Physiology	40,000	49,558		89,558		-
38.	Center for Experimental BioInformatics	34,603	35,674		70,277		-
39.	Center for Human-Machine Interaction	25,027			25,027		-
Centers established in 2001							
40.	Center for Metal Structures in 4 Dimensions	36,572	33,825		70,397		-
41.	Center for Nucleic Acid (NAC)	34,307	32,550		66,857		-
42.	Center for Applied Microeconometrics	26,723			26,723		-
43.	Center for Biomembrane Physics	35,137	30,456		65,593		-
44.	Center for Quantum Optics	29,800	50,795		80,595		-
45.	The Water and Salt Research Center	32,503	33,380		65,883		-
46.	Quantum Protein Center	30,468	5,311		35,779		-
47.	Center of Functionally Integrative Neuroscience	33,765	42,198		75,963		-
48.	Wilhelm Johannsen Center for Functional Genome Research	30,226	29,597		59,823		-
To be carried forward		1,574,335	1,189,727	0	2,764,062	0	0

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		1,574,335	1,189,727	0	2,764,062	0	0
Centers established in 2002							
49.	Center for the Study of Cultural Heritage of Medieval Rituals	15,209	12,206		27,415		-
50.	Center for Black Sea Studies	17,292	17,637		34,929		-
51.	Center for Subjectivity Research	19,148	17,230		36,378		-
Initiatives established in 2003							
52.	National Platform for Integrative Biology	17,909			17,909		-
Centers established in 2005							
53.	Nordic Center for Earth Evolution	43,954	45,352		89,306		-
54.	Center for Individual Nanoparticle Functionality	38,942	45,605		84,547		-
55.	Centre for Inflammation and Metabolism	25,824	30,063		55,887		-
56.	Center for Genotoxic Stress	39,533	26,000		65,533		-
57.	Centre for Social Evolution	32,827	44,192		77,019		-
58.	Centre for mRNP Biogenesis and Metabolism	39,264	40,686		79,950		-
59.	Center for Insoluble Protein Structures	39,934	40,016		79,950		-
60.	Center for Oxygen Microscopy and Imaging	22,228	28,026		50,254		-
61.	Centre for Viscous Fluid Dynamics	38,392	30,000		68,392		-
62.	Dark Cosmology Centre	49,162	65,123		114,285		-
63.	Centre for Language Change in Real Time	29,757	41,305		71,062		-
64.	Centre for Textile Research	19,387	25,338		44,725		-
65.	Center for Models of Life	22,053	29,856		51,909		-
66.	Danish Arrhythmia Research Centre	29,692	40,000		69,692		-
67.	Center for Sustainable and Green Chemistry	24,797			24,797		-
68.	Center for Molecular Movies	31,098	4,320		35,418		-
Niels Bohr Professorships established in 2006							
69.	David Arnot, University of Copenhagen	20,008			20,008		-
70.	Dale T. Mortensen, Aarhus University	12,630			12,630		-
71.	Nikolai Reshetikhin, Aarhus University	21,118			21,118		-
72.	Christopher Frith, Aarhus University	13,033			13,033		-
73.	Cathie Martin, University of Copenhagen	16,823			16,823		-
74.	Hassan Aref, Technical University of Denmark	10,795			10,795		-
To be carried forward		2,265,144	1,772,682	0	4,037,826	0	0

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		2,265,144	1,772,682	0	4,037,826	0	0
DNRF Professorships established in 2007							
75.	Steen Rasmussen, University of Southern Denmark	22,075			22,075		-
76.	Jørgen S. Nielsen, University of Copenhagen	19,090			19,090		-
77.	John Couchman, University of Copenhagen	21,917			21,917		-
Centers established in 2007							
78.	Center for Research in Econometric Analysis of Time Series	40,204	40,000		80,204		-
79.	Centre for Carbohydrate Recognition and Signaling	45,581	45,000		90,581		-
80.	Center for Comparative Genomics	16,489			16,489		-
81.	Centre for DNA Nanotechnology	44,501	50,000		94,501		-
82.	Center for Epigenetics	61,014	49,730		110,744		-
83.	Centre for Ice og Climate	60,985	55,311		116,296		-
84.	Center for Massive Data Algorithm	32,541	40,000		72,541		-
85.	Centre for Membrane Pumps in Cells and Disease	56,296	50,415		106,711		-
Joint funding							
86.	National Natural Science Foundation of China (NSFC), seminars	641			641		-
86-1.	NSFC, Danish-Chinese Center for Proteases and Cancer	11,534	10,000		21,534		-
86-2.	NSFC, Danish-Chinese Center of Breast Cancer Research	12,681	9,864		22,545		-
86-3.	NSFC, Danish-Chinese Center for Self-Assembly and Function of Molecular Nanostructures on Surfaces	14,755	10,000		24,755		-
86-4.	NSFC, Danish-Chinese Center for Molecular Nano-Electronics	14,536	10,000		24,536		-
86-5.	NSFC, Danish-Chinese Center for Nanometals	13,589	10,069		23,658		-
86-6.	NSFC, Danish-Chinese Center for Proton Conducting Systems	14,537			14,537		-
86-7.	NSFC, Danish-Chinese Center for Organic-based photovoltaic cells	15,000	9,997		24,997		-
86-8.	NSFC, Danish-Chinese Center for Applications of Algebraic Geometry	13,052			13,052		-
86-9.	NSFC, Danish-Chinese Center for the Theory of Interactive Computation	14,908	10,000		24,908		-
86-10.	NSFC, Danish-Chinese Center for IDEA4CPS: Foundations for Cyper-Physical Systems	14,399	9,608		24,007		-
87.	Max Planck Society, Center for Geomicrobiology	24,029			24,029		-
To be carried forward		2,849,498	2,182,676	0	5,032,174	0	0

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		2,849,498	2,182,676	0	5,032,174	0	0
Course activities for center leaders/outreach program							
88.	Management course/communication	3,550	7,600		11,150	925	5,855
Centers established in 2009/2010							
89.	Center on Autobiographical Memory Research	42,085	42,000		84,085	9,348	8,741
90.	Center for Particle Physics Phenomenology	40,000	40,000		80,000	8,447	8,152
91.	Centre for Particle Physics	40,000	40,000		80,000	10,542	10,604
92.	Center for Symmetry and Deformation	50,104	40,415		90,519	12,254	12,262
93.	Center for Materials Crystallography	50,174	55,000		105,174	8,093	13,772
94.	Center for Geogenetics	50,210	50,639	104	100,953	6,990	3,243
95.	Centre for Quantum Geometry of Moduli Spaces	54,271	35,000		89,271	5,657	4,158
96.	Center for Macroecology, Evolution and Climate	60,747	51,486	104	112,337	9,100	10,862
97.	Center for Star and Planet Formation	38,400	44,150	69	82,619	7,447	3,266
Centers established in 2012							
98.	Centre for Medieval Literature	36,000	24,000		60,000	5,542	19,048
99.	Center for Dynamic Molecular Interactions	49,000	32,700		81,700	6,307	26,393
100.	Center for Permafrost	60,242	39,500		99,742	8,734	30,323
101.	Center for Quantum Devices	64,415		-7	64,408	4,997	0
102.	Center for Financial Frictions	48,000		32,000	80,000	9,203	25,935
103.	Center for Nanostructured Graphene	54,138		36,000	90,138	8,786	28,598
104.	Center for Geomicrobiology	58,301			58,301		0
105.	Center for International Courts	42,000	28,000		70,000	6,135	23,070
106.	Stellar Astrophysics Centre	55,000		36,700	91,700	8,301	30,658
107.	Copenhagen Center for Glycomics	62,000	41,300	207	103,507	8,962	32,545
108.	Center for Vitamins and Vaccines	58,000			58,000	3,640	444
To be carried forward		3,866,135	2,754,466	105,177	6,725,778	149,410	297,929

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		3,866,135	2,754,466	105,177	6,725,778	149,410	297,929
Niels Bohr Professorships established in 2013							
109.	Anna Tsing, Aarhus University	29,415			29,415	6,598	0
110.	David Needham, University of Southern Denmark	29,000		-654	28,346	174	0
111.	Lars Hesselholt, University of Copenhagen	30,000			30,000	1,793	0
112.	Charles Lesher, Aarhus University	29,952			29,952	2,188	0
113.	Jaan Valsiner, Aalborg University	20,000			20,000	824	0
114.	Subir Sarkar , University of Copenhagen	29,000		-328	28,672	5,136	0
Centers established in 2015							
115.	Center for Chromosome Stability	65,000			65,000	11,143	30,626
116.	Center for Stem Cell Decision Making	60,000			60,000	10,284	25,664
117.	Center for Music in the Brain	52,207			52,207	11,593	26,871
118.	Center for Carbon Dioxide Activation	60,000			60,000	10,803	24,393
119.	Center for Urban Network Evolutions	65,000			65,000	19,302	25,079
120.	Center for Bacterial Stress Response and Persistence	50,000			50,000	9,728	23,788
121.	Center for Neuroplasticity and Pain	60,242			60,242	12,706	25,021
122.	Center for Intelligent Oral Drug Delivery and Sensing using Microcontainers and Nanomechanics	56,000			56,000	10,038	21,512
123.	Center for Silicon Photonics for Optical Communications	59,000			59,000	11,762	19,649
124.	Center for Hyperpolarization in Magnetic Resonance	55,000			55,000	8,035	30,409
125.	Center for Autophagy, Recycling and Disease	50,000			50,000	7,797	16,942
126.	Center for Personalized Medicine Managing Infectious Complications in Immune Deficiency	60,000			60,000	13,381	25,291
To be carried forward		4,725,951	2,754,466	104,195	7,584,612	302,695	593,174

16A DISTRIBUTION OBLIGATIONS

2018 distributions and total grants, DKK thousand

Grant No		Grant 1st period	Grant 2nd period	Changes in 2018	Grants total	Disbursed 2018	Residual disbursement, expected
Brought forward		4,725,951	2,754,466	104,195	7,584,612	302,695	593,174
Niels Bohr Professorships established in 2016-2017							
127.	Rita Felski, University of Southern Denmark	27,997			27,997	8,196	13,180
128.	Matthew Collins, University of Copenhagen	30,860			30,860	5,718	21,000
129.	John McGrath, Aarhus University	29,948			29,948	5,749	16,513
130.	Thomas Pohl, Aarhus University	29,976			29,976	7,119	19,095
131.	Morten Bennedsen, University of Copenhagen	29,909			29,909	5,877	20,192
132.	Enrico Ramirez-Ruiz, University of Copenhagen	29,959			29,959	5,929	19,453
Centers established in 2017 and 2018							
133.	Center for Proteins in Memory	62,000			62,000	7,006	54,994
134.	Center for Economic Behavior and Inequality	57,000			57,000	4,057	52,153
135,	Center for Cellular Signal Patterns	61,000			61,000	9,285	51,203
136.	Center for Electromicrobiology	56,000			56,000	11,979	42,865
137.	Center for Microbial Secondary Metabolites	58,000			58,000	3,280	54,720
138.	Center for Privacy Studies	50,000			50,000	5,256	44,339
139.	Center for Hybrid Quantum Networks			62,000	62,000	7,613	54,387
140.	The Cosmic Dawn Centre			66,000	66,000	3,045	62,954
141.	Center for Functional Genomics and Tissue Plasticity	65,000			65,000	7,852	56,259
142.	Center for Macroscopic Quantum States			63,000	63,000	8,635	54,365
Grant and distribution, total		5,313,600	2,754,466	295,195	8,363,261	409,291	1,230,846

The number of grants listed in the key figures includes the Centers of Excellence, the joint funding activities and the Niels Bohr Professorships, listed on pages 32-37.

All payments are subject to a contractual qualification that the foundation has to receive the expected and required revenue.

16B DISTRIBUTION OBLIGATIONS

Annual disbursments, DKK thousand:	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	239,916		
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		467,690	
2020		353,467	
2021		231,852	
2022		103,331	
2023		70,740	
2024		3,766	
	7,132,415	1,230,846	8,363,261

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.

16C EXPECTED DISTRIBUTIONS 2019-2023

In addition to the distribution obligations listed in notes 16a and 16b, new centers will be established in 2019/20 as a result of the 10th application round, which was announced in 2018. In the period 2019-2023, total (given and planned) distributions are expected to be as follows:

	million DKK
2019	485
2020	431
2021	456
2022	375
2023	449
	2,195

17 CONTIGENT LIABILITIES

The foundation has to give six months' notice to terminate the tenancy agreement, at December 31, 2019 at the earliest. The obligation amounts to DKK 765,312

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

		2018
Currency	Purchase	Sale
USD	15,101,510	159,155,136
JPY	168,740,103	1,507,512,229
CAD	0	7,255,000
EUR	901,408	90,453,000
GBP	127,000	6,985,000
NZD	0	566,000
SEK	0	5,000

		2017
Currency	Purchase	Sale
AUD	0	1,970,000
USD	2,580,721	167,717,798
JPY	53,708,863	1,779,566,880
CAD	116,000	8,781,000
EUR	1,516,205	92,891,000
GBP	0	8,510,000
NZD	0	556,000
SEK	0	17,845,000

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:

		2018
Currency	Purchase	Sale
EUR	8,900,000	5,700,000

		2017
Currency	Purchase	Sale
EUR	5,700,000	2,500,000

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.

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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 Sejer Pedersen (Deloitte), State Authorized Public Accountant is appointed for the period May 1, 2016 to Maj 31, 2019.

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