

VELUX STIFTUNG

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# ANNUAL REPORT 2017



# CONTENT

## SCOPE OF ACTIVITIES

I.	OWN PROJECTS	3
	INTERNATIONAL DAYLIGHT AWARD	4
	DAYLIGHT ACADEMY	5
	HEALTHY AGEING INITIATIVE	8
II.	EXTERNAL PROJECTS	10
	DAYLIGHT RESEARCH	10
	HEALTHY AGEING RESEARCH	15
	OPHTHALMOLOGY RESEARCH	23
III.	FUNDING STATISTICS	25

## FOUNDATION

IV.	MISSION & BACKGROUND	28
V.	FOUNDATION BOARD	29
VI.	MANAGEMENT	30
VII.	OPERATIONAL EXCELLENCE	31
VIII.	FINANCIALS	32
	IMPACT INVESTMENTS – CARING ABOUT CLIMATE AND THE ENVIRONMENT	32
	ESG COMPLIANCE	33
	DISTRIBUTION OF ASSETS	33
	INVESTMENT COMMITTEE	33
IX.	ENGAGEMENT FOR THE PHILANTHROPIC SECTOR	34

# SCOPE OF ACTIVITIES

## I. OWN PROJECTS

The Velux Stiftung made it its priority to foster impact in its strategic funding areas. While research funding is still the main activity, the foundation also wants to foster knowledge transfer and exchange in the core funding areas of **Daylight Research, Healthy Ageing Research and Ophthalmology**. This has led to initiatives and support of activities that raise awareness, improve the conditions for research and enable new ways of collaboration.

In the past three years the foundation has initiated or contributed to the following projects:

- **International Daylight Award**
- **Daylight Academy**
- **Healthy Ageing Initiative:**
  - Collaboration with the World Health Organization to identify
  - Research Standards,
  - Metrics for Data Monitoring and
  - Research Priorities on a global level.

The Healthy Ageing Initiative took a next step in 2017: Motivation has been identified as a key concept in previous workshops on how to advance Healthy Ageing Research. The foundation board decided to support the organization of an interdisciplinary workshop on Healthy Ageing and Motivation. The workshop will take place in 2018.

## INTERNATIONAL DAYLIGHT AWARD

The International Daylight Award is an initiative to raise awareness for the influence of daylight. The prize is granted every two years for exceptional achievements with regard to the role of daylight in research and architecture.

The prize started back in 2007, as the Tageslicht-Award, a Swiss architectural prize that was initiated by the Velux Stiftung. It has developed further to become the International Daylight Award that is now funded jointly by the Velux Stiftung and the Danish Velux Foundations since 2016.

This year the two laureates of 2016 held public presentations in Switzerland and Denmark to raise awareness for the topic of Daylight. On 7 November Professor Marilyne Andersen and architect Steven Holl presented their work at ETH Zurich.

In 2018, the next International Daylight Award will be granted, and the official ceremony will take place in Lausanne on 27 September 2018.



From left to right: Aki Kawasaki, the laureates Steven Holl and Marilyne Andersen and Hubert Klumpner at the podium discussion after the laureate lectures.

## DAYLIGHT ACADEMY

The Daylight Academy is an interdisciplinary platform for exchange among the different disciplines and fields of expertise working on daylight. The Daylight Academy wants to promote international and interdisciplinary cooperation among scientists, architects and other professionals involved in daylight research or with a strong interest in daylight related topics with the aim to initiate innovation and new knowledge.

The first year of the Daylight Academy started off with the 65 founding members receiving their membership certificates. In a next step, a website informing about the purpose, organisation and activities of the Daylight Academy went online.

More than 40 members co-authored the LIGHTBOOK which was published as a feature booklet with Science AAAS Publishing. At the official inauguration in 2016, the founding members had agreed to write an interdisciplinary, non-exhaustive overview on the current state of knowledge and the unanswered questions in the various fields working on daylight: the LIGHTBOOK.

Spring and summertime showed an amazing effort of collaboration among the authors and the publishing offices. 10'000 booklets were enclosed in the weekly journal of Science on 3rd November, 1'000 booklets were shipped to the offices of the Daylight Academy and 50'000 registered online-users of Science AAAs received email alerts and were referred to the publication that is also [available online](#).



The LIGHTBOOK was published in cooperation with Science AAAS and gives an interdisciplinary overview and perspectives on the current state of knowledge in Daylight Research.

In September Lydia Moreno started her part-time position as program officer of the Daylight Academy. She coordinates, organizes and pulls the strings in the background to keep the academy up and running.



Lydia Moreno and Lukas von Orelli at the Annual Conference in Lausanne, reviewing last changes on the screen.

At the annual conference on 17 November the Daylight Academy members and guests could grab their own copy of the long-awaited LIGHTBOOK which is officially entitled "Changing perspectives on daylight: Science, technology and culture". The Daylight Academy received many compliments for creating this platform for interdisciplinary exchange, for the LIGHTBOOK as seminal work in the field of Daylight Research and the bridge-building activities among the disciplines.



After months of writing and editing, the LIGHTBOOK was finally published.



The event took place at the Starling Hotel at EPFL in Lausanne and the vibrant atmosphere in the community created the perfect basis to discuss the future activities of the academy. Five discussion workshops provided opportunities to collect new ideas and hone previously set aims. In plenum these project ideas were refined and after the conference the project leaders wrote an application to the steering committee who will decide on the support of the projects in their next meeting.



Impressions from the Annual conference 2017 in Lausanne.

## HEALTHY AGEING INITIATIVE

The urgent need for research standards, metrics and research priorities in the field of Healthy Ageing has been an important point on the agenda of the Velux Stiftung. When the World Health Organization (WHO) identified the same points in their Global Strategy and Action Plan on Ageing and Health in 2016, we initiated a joint project.

The Global Strategy and Action Plan on Ageing and Health (2016 – 2020) is a significant step forward to prepare for the Decade of Healthy Ageing (2020 – 2030) and achieving the vision that all people can live long and healthy lives. Among the five strategic objectives set out in the strategy, ‘improving measurement, monitoring and research on Healthy Ageing’ was a match with the agenda of the Velux Stiftung.

The common interest led to a variety of activities that raised awareness, fostered exchange beyond disciplinary and cultural borders and supported the emergence of a new perspective how to do future research for Healthy Ageing:

Some activities were directed towards preparing for the Decade of Healthy Ageing from 2020-2030. Based on previous work of the G7 group on Metrics, Monitoring and Research, a recommendation for a roadmap was prepared and presented to the health ministers of G7 countries. A public document entitled ‘10 priorities for a Decade of Action on Healthy Ageing’ lists the actions that have been identified in a series of consultations with experts, WHO staff and key stakeholders to be transformative. Among them are:

**Point 3. Collect better global data on Healthy Ageing**

**Point 4. Promote research that addresses the needs of older people**

Having globally comparable metrics for monitoring and research will allow to evaluate interventions, synthesize evidence and improve health outcomes. Therefore, a 5-day in-depth consultative workshop was organized where participants discussed and agreed on ways to measure intrinsic capacity (IC) and functional ability (FA) and how to create a set of surveys where the recommendations on IC and FA measurements can be tested. The participants also agreed to create



an international consortium on Healthy Ageing metrics and evidence.

It is important to identify, test, verify and advocate for a coherent approach on how to investigate healthy ageing across countries and over time. Having common research standards will make data more comparable and require adaptations in future monitoring schemes. A series of background papers on research study design, participation, ethics, physiology and medicine for older adults as well as metrics and indicators for healthy ageing, classification issues and approaches how to operationalize these issues were published and discussed, all of it aiming at developing a global survey for a baseline by 2020.

Finally in a process to identify research priorities, a global online consultation on research priority setting for Healthy Ageing was done. It was available in six languages and completed by 593 people in the 46 days it was available. The results were then discussed in a meeting with heads of national and regional health research councils on ageing, research funding agencies, foundations and representatives from the WHO Secretariat. The issues and challenges each institution faces were reflected in a background note describing the joint experience and drafting ways in which to address them.

The outcomes of these activities will be summarized in a new report series on metrics, research and knowledge translation, published by the WHO in the first half of 2018. The series will include papers on advancing measurement of intrinsic capacity and functional ability, on trajectories of intrinsic capacity through the Life Course, and on building a global research agenda for Healthy Ageing.



Dr. Flavia Bustreo, WHO Assistant Director-General for Family, Women's and Children's Health speaks at the consultative workshop at the WHO Headquarters in Geneva and underlines the importance to measure intrinsic capacity (IC) and functional ability (FA) as a concept that can be measured over life course.

## II. EXTERNAL PROJECTS

The board approved the following projects in 2017:

### DAYLIGHT RESEARCH

#### 1. DEVELOPMENT AND APPLICATION OF SPECTRAL SKY MODELS IN URBAN PLANNING

Dr. Martine Knoop, Chair of Lighting Technology, Technische Universität Berlin, Germany  
CHF 270'000 (EUR 250'000)

Recent studies indicate that the non-image forming (NIF) effects of light during daytime depend on both the distribution and spectral composition of light. The main goal of this project is the development of novel data-driven spectral sky models to improve the characterization of daylight. Those models represent the orientation depending spectral characteristics of daylight and are derived from spatially and temporally resolved spectral measurements collected at the daylight measuring site of the Technische Universität Berlin, one of the few measuring sites in the world gathering this kind of data. The spectral sky models enable the integration of daylight in the design of urban structures that support people's well-being. The models will be subsequently used to study the impact of building orientation, prevailing daylighting conditions and urban obstruction properties in assessment of spectral characteristics of daylight on façades. The resulting spectral characteristics of daylight on façades will be represented in so-called spectral daylight potential diagrams (SDPD), as a design aid for a broader audience.



Daylight conditions in an urban environment: Variability in intensity, directionality and colour to consider in urban planning.

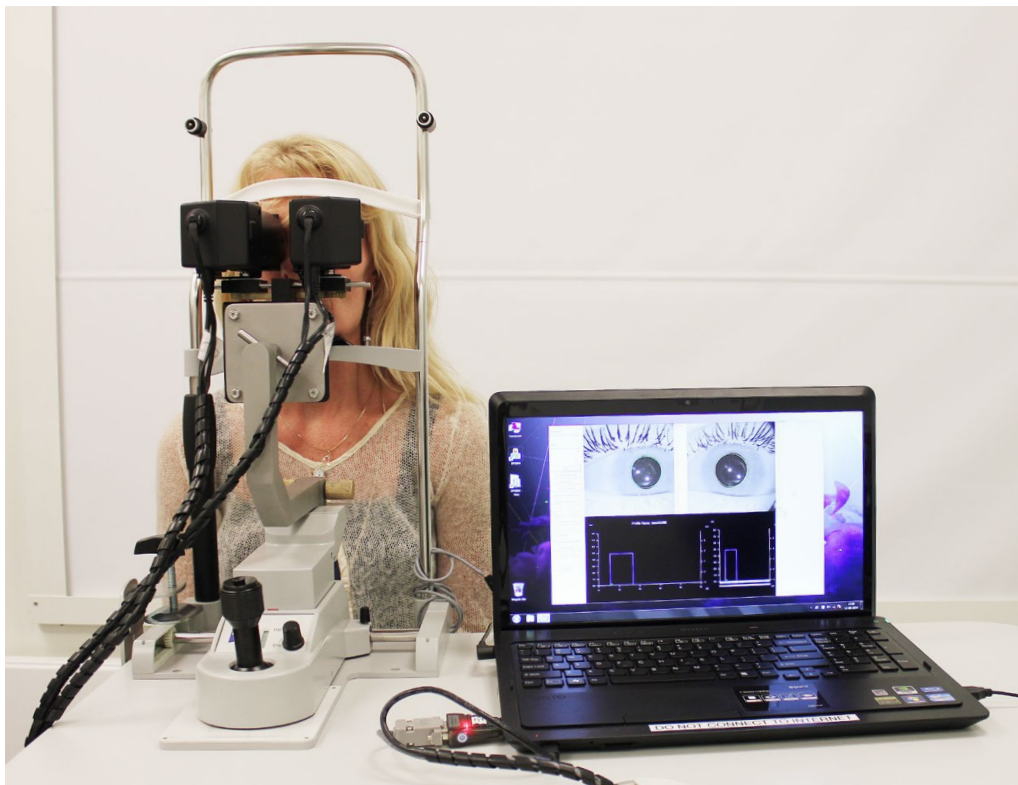


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## 2. THE NEUROBIOLOGY OF SEASONAL AFFECTIVE DISORDER: EXPLORING THE HIGH PREVALENCE IN SEVERE VISUAL IMPAIRMENT

Prof. Dr. Klaus Martiny, Rigshospitalet, Mental Health Center  
Copenhagen, Denmark  
CHF 275'260 (DKK 1'887'935)

Seasonal affective disorder (SAD) is highly prevalent in people with severe visual impairment or blindness. The aim of this project is to study parameters of brain and eye function in persons with visual impairment and SAD to elucidate the neurobiological ground for SAD. Specifically, the association between non-visual photoreceptors, circadian rhythm and SAD will be investigated. Moreover, tolerability and effect of light treatment in this high-risk population will be assessed.



Pupillometry: Infrared tracing of the changes in pupil diameter in response to light stimulation.

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3. THE CIRCADIAN CLOCK IN DAY-ACTIVE SPECIES:  
PRESERVING OUR HEALTH IN MODERN SOCIETY

Prof. Dr. Johanna Meijer, Molecular Cell Biology, Leiden  
University Medical Center, The Netherlands  
CHF 457'000 (EUR 392'000)

Information how light affects the central biological clock, the supra-chiasmatic nucleus (SCN), is mainly based on scientific data obtained in nocturnal species. It is hypothesized that the diurnal clock, including that of humans, is fundamentally different at several organisational layers of the SCN compared with that of nocturnal species. The project will do an in-depth investigation of the diurnal clock using a variety of techniques, which have been recently developed. The central hypothesis in this project claims that the clock of humans is different from the clock in nocturnal species. The second hypothesis is that a broad range of wavelengths, as present in natural outdoor light, affects our clocks, and not only blue light, as is currently assumed. This knowledge can eventually be used to strengthen clock function in humans and prevent disease.

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4. HOW PLANTS RESPOND TO LIGHT CUES – THINKING  
ON A NOVEL ROUTE

Dr. Célia Baroux, Department of Plant and Microbial Biology,  
University of Zürich, Switzerland  
CHF 350'000

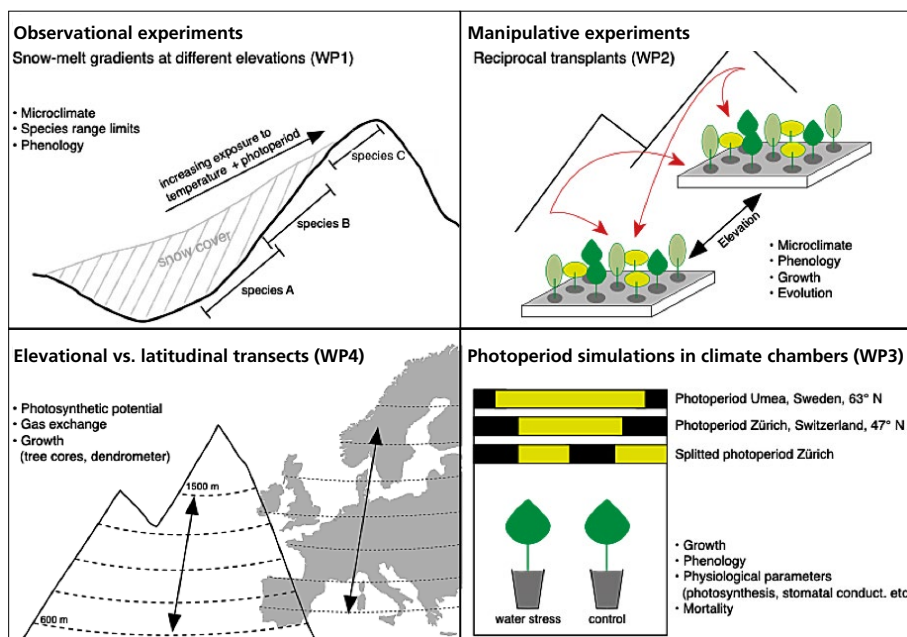
Plants have the remarkable ability to sense and use light conditions as a source of information to adapt their development and physiology accordingly to their environment. Specially, the first perception of light by young plantlets induces radical changes with fast molecular reprogramming launching growth and photosynthetic activity. These multilevel mechanisms implicate the chromatin, a functional and programmable structure of the (epi)genome. This project seeks at elucidating the functional determinants of light-induced chromatin reorganisation at molecular and ultrastructural levels.



## 5. DAYLIGHT AND CLIMATE CHANGE – DO EVOLUTIONARY CONSTRAINTS ON PHOTOPERIOD AND CIRCADIAN CLOCKS HINDER ADAPTATION AND ACCLIMATION OF PLANTS TO CLIMATE CHANGE?

Dr. Arthur Gessler, Institute Forest Growth and Climate, Swiss Federal Research Institute WSL, Birmensdorf, Switzerland  
CHF 491'000

Global climate change is affecting the area of distribution of plant species resulting in migration to higher altitudes and latitudes. However, plants are also bound to daylight rhythmicity, both on a diel and seasonal scale, and this might hamper species distribution under, and fast acclimation to, rapid environmental change. It may thus happen that the potential distribution range of a species - defined by temperature and precipitation - moves north due to climate change, but that the photoperiod cues at this new latitude do not match the evolutionary demands of that species. With this project, the mechanistic basis and a conceptual framework will be provided to understand how climatic and daylight/photoperiod cues jointly affects tree functioning. With this information, a better basis to project plant species distribution and functions in a changing climate will be provided.

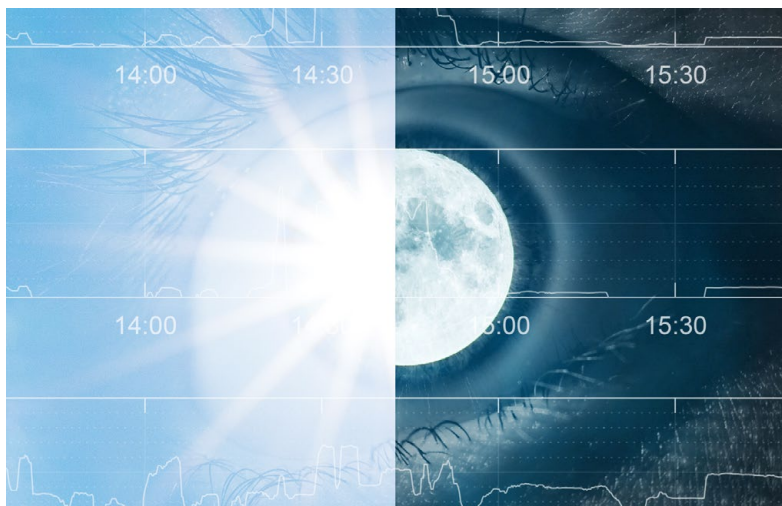


The project's approach to identify present and future responses to photoperiodic cues and its interaction with temperature and other climatic parameters.

6. LIGHT EXPOSURE AND HEALTH – LIGHT-DOSIMETER FOR THE LONG-TERM RECORDING AND EXAMINATION OF BIOLOGICALLY EFFECTIVE RADIATION AND ITS EFFECT ON HUMANS

Prof. Dr. Björn Schrader, Institute for Building Technology and Energy (IGE), Lucerne University of Applied Sciences, Horw, Switzerland  
CHF 296'900

Light triggers visual and non-visual responses and is closely linked to our health and wellbeing. Due to societal, demographic and technological changes, we no longer follow the natural light/dark cycle, but live in a 24-hour society. Whereas attempts have been made to study the connection between light exposure and human circadian entrainment, the currently available tools to do so still leave room for improvement. The goal of this project is the development and provision of a light-dosimeter as an enabler to be used by a broad research community in future studies. The device shall record the individual light exposure for relevant groups of people by tracking not only the amount of light over time, but also its composition. Users will have access to the raw data, which facilitates future customisation. Findings can be used to increase awareness of the influence of light in society, i.e. daylight and artificial light to support positive and to prevent negative developments. The project team consists of an interdisciplinary team from the Lucerne University of Applied Sciences and Arts and external experts combining knowledge in light and lighting, chronobiology, metrology, electronics and product design.



An improved tool to measure an individual's exposure to light over time, amount of light and the light's composition will be developed to overcome a bottleneck of a broad community of researchers working on daylight.

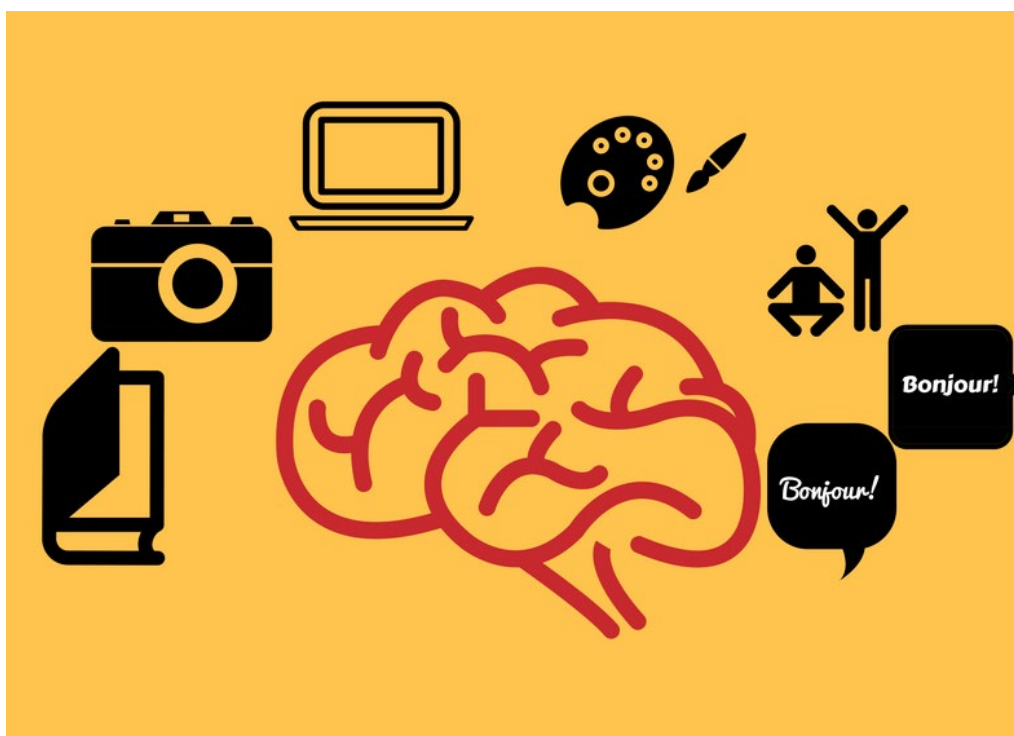


## HEALTHY AGEING RESEARCH

## 7. THE INTERVENTION FACTORY: PHD STUDENTSHIP

Prof. Dr. Alan Gow, School of Life Sciences, Heriot-Watt University, Edinburgh, United Kingdom  
CHF 81'600 (GBP 63'396)

As we age, we may experience general declines in our thinking, memory and reasoning skills (cognitive ageing). There is, however, large variation in the degree of decline experienced. Keeping intellectually, socially or physically engaged have all been proposed as potentially protective. These factors have been incorporated in interventions for cognitive ageing, though are often developed and tested in lab-based settings that may not translate to realistic environments. The project will test a range of activities within existing community-based programs as potential interventions to reduce cognitive ageing in old age.



Can community-based programs, such as language courses, physical training, digital skills courses and other activities protect participants from cognitive ageing?

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8. TRAINING-BASED REMEDIATION OF INHIBITORY CONTROL IN ELDERLY: A RANDOMIZED CONTROLLED TRIAL COUPLED WITH NEUROIMAGING

Dr. Lucas Spierer, Department of Medicine, University of Fribourg, Switzerland  
CHF 130'000

The project will focus on training elderly's ability to suppress irrelevant actions or thoughts because these functions are very sensitive to ageing and play a central role in daily activities. The investigations will focus on testing whether practicing specifically designed 'serious' videogames can help compensating the cognitive declines associated with healthy ageing. In addition to testing improvements in cognitive functioning and quality of life, the project will also study the underlying changes in brain activity and whether the interventions have the same effects in young populations as in the elderly.



Older adults using a notepad to play a training video.

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9. ENLIGHTENING THE AGEING BRAIN: BENEFITS OF LIGHT TO HEALTHY AGEING OF BRAIN NETWORKS

Dr. Stephan Michel, Molecular Cell Biology, Leiden University  
Medical Center, Leiden, Holland  
CHF 297'200 (EUR 273'860)

Older adults often show a fragmentation of their sleep-wake cycle with naps during daytime and interruptions of sleep at night. This is mainly due to a weakening of the brain's internal clock, the SCN (suprachiasmatic nucleus), which controls the timing of almost all physiological functions in our body (e.g. sleep, metabolism, etc.) and is therefore linked to many age-related diseases. In ageing, the SCN neuronal network assumes a different state with less inhibitory activity and more desynchrony. Based on the observation that some light regimes (e.g. prolonged light) can produce similar desynchronized neuronal activity as seen in ageing brains, the project wants to a) to elucidate the mechanisms behind this observation and b) test if the age-dependent alterations in the state of the neuronal network can be rectified by particular, more regular light regimes.



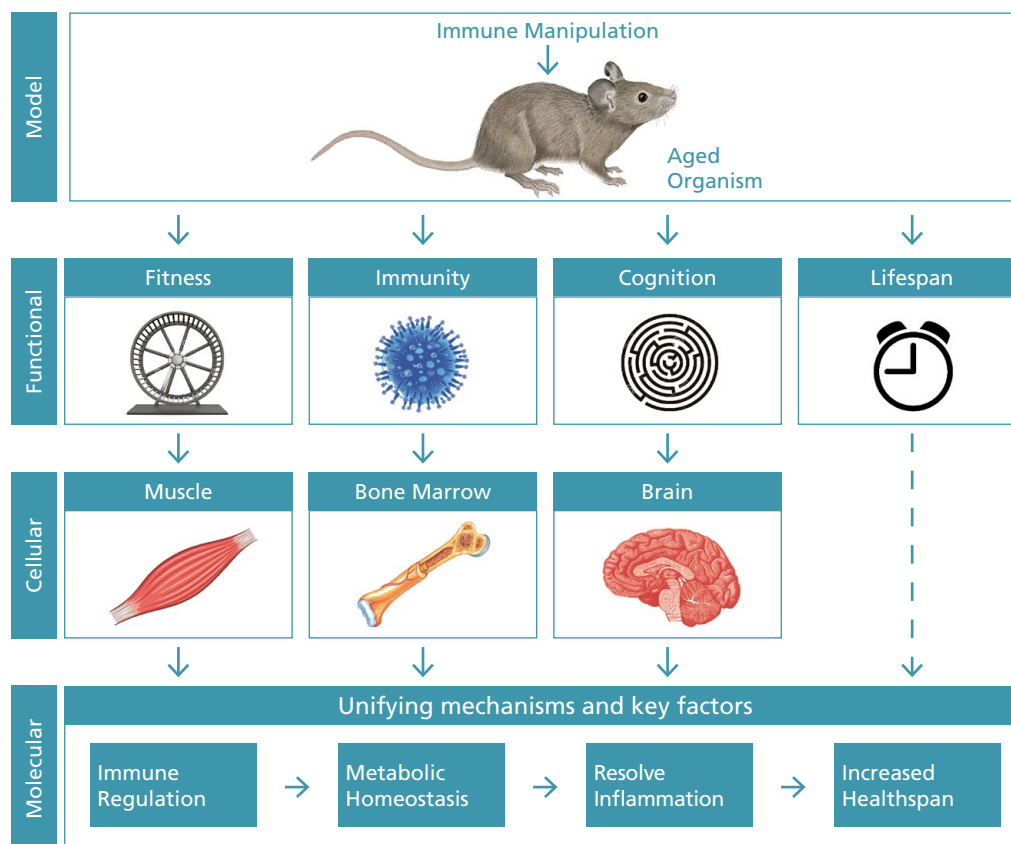
Older adults often show fragmented sleep patterns. This might be due to a weakened internal clock in the brain. A desynchronized internal clock can also be due to an altered light regime.



## 10. HEALTHY AGEING – AN IMMUNOLOGIC APPROACH TO PROMOTE SYSTEMIC REJUVENATION

Dr. Alexander Eggel, Department for Rheumatology, Immunology and Allergology, University of Bern, Inselspital, Switzerland  
CHF 376'000

It has recently been demonstrated that exposure of an aged mammalian organism to a young systemic environment can not only slow down but even reverse pre-existing ageing signatures. While the exact mechanisms of this rejuvenation process remain to be elucidated these findings provide compelling evidence that the unidirectional process of ageing is more plastic than previously assumed. In this study, a new immunological concept to systemically rejuvenate an aged mammalian organism and thereby to promote healthy ageing is proposed.



By restoring the innate immune cell function that are implicated in key regulatory processes of metabolic homeostasis the study wants to re-establish stem cell function and tissue integrity. The rejuvenating effect will be assessed on the functional, cellular and molecular level.

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11. CYSTECTOMY DUE TO FUNCTIONAL AND NEUROGENIC VOIDING DYSFUNCTION IN ELDERLY PATIENTS: IS THERE ANY ROOM FOR IMPROVEMENT?

Dr. Marc Alain Furrer, Department Urology, Inselspital Bern, Switzerland  
CHF 50'000

Bladder dysfunction causing bothersome symptoms progressively occurs in otherwise healthy elderly patients, having a major impact on quality of life and health. Conservative (pharmacological and behavioural) therapy failure is often reported. In these cases, surgical removal of the bladder as a valid option should be considered. Patients and clinicians are often unaware of this possibility to resolve this vitiating condition. The project wants to show clinicians (specialists and generalists), researchers, caregivers, patients and their caretakers the feasibility and advantages of the surgical therapy in patients with bladder dysfunction.

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12. CARDIAC EXOSOMES FOR MYOCARDIAL SENESENCE REPAIR

Dr. Lucio Barile, Cellular and Molecular Cardiology Laboratory, Cardiocentro Ticino (CCT), Lugano, Switzerland  
CHF 235'000

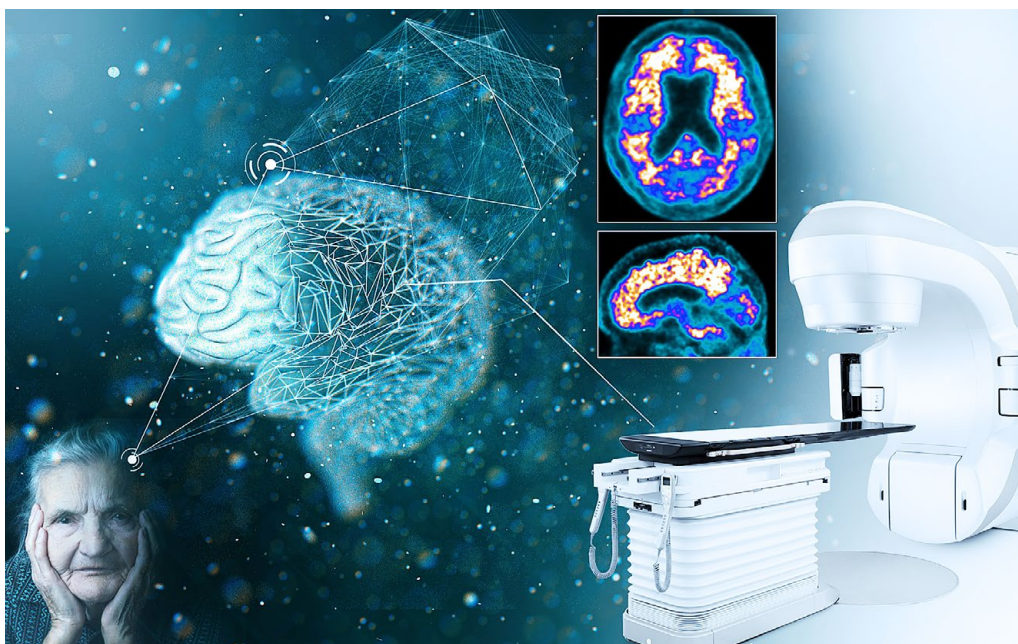
Age is the main independent risk factor for cardiovascular morbidity and mortality determined by cardiovascular diseases. Exosomes (Exo) are extracellular vesicles of endosomal origin and their RNA and protein content is different in healthy subjects and patients with different diseases. The aim of this project is to explore cardioprotective effects of Cardiac Progenitor Cells-Exosomes (CPC-Exo) to prevent senescence-induced cardiac anomalies.

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### 13. AMYLOID REMOVAL BY LOW DOSE BRAIN IRRADIATION IN ALZHEIMER'S DISEASE: A NEW THERAPEUTIC APPROACH

Dr. Valentina Garibotto, Nuclear Medicine and Molecular  
Imaging - NIMTlab, Geneva University Hospital, Switzerland  
CHF 550'000

The ultimate goal of the present project is to test the therapeutic potential of a novel approach, namely low dose brain radiation therapy (RT), to cure Alzheimer's Disease (AD). Previous data in one animal model have shown that RT can remove amyloid deposits, one of the key steps in the AD cascade, and improve cognition. This project will test different RT schemes in a more complex animal model, closer to the human disease, to find the most effective treatment strategy. Subsequently the most effective RT scheme will be used in a pilot study to test, by molecular imaging, its ability to remove amyloid in patients opening the way for a novel therapeutic approach in AD.



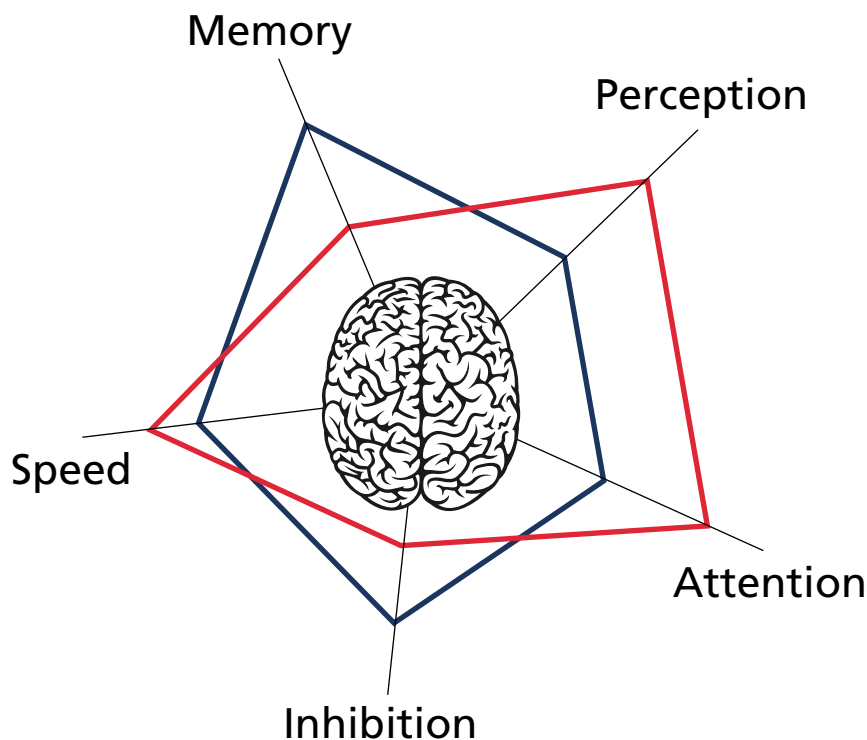
Previous studies in preclinical Alzheimer's Disease models or in other diseases suggest that low dose brain radiation therapy could modulate the disease process and remove amyloid deposits, one of the steps of the AD cascade.



14. A NEUROCOGNITIVE ASSESSMENT OF HEALTHY AGEING

Prof. Dr. Nicolas Langer, Institute of Psychology, University of Zurich, Switzerland  
CHF 206'000

Even healthy people typically experience some decline in cognitive functions with ageing. However, people differ greatly in the rate and beginning of cognitive decline and in the specific cognitive functions that are affected. The present project has the goal of advancing the understanding about cognitive aging by characterizing the processes underlying cognitive functions with a novel multimodal neuroscientific method. The neurocognitive profiles created will offer the possibility to quantify cognitive functions in a multifaceted and comprehensive way. The functional significance of the profiles will be examined in relation to standard psychological tests and neuroanatomical measures and finally, will be used to investigate the influences of protective factors.



Hypothetical neurocognitive profile of two individual subjects.

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15. AIR POLLUTION AS A MAJOR OBSTACLE IN  
HEALTHY AGEING: COULD THE GUT PLAY A ROLE?

Dr. Claudia Cavelti-Weder, Department of Biomedicine,  
University of Basel, Switzerland  
CHF 466'000

Air pollution has emerged as an unexpected risk factor for cardiovascular disease and diabetes, thereby reducing healthy ageing. However, the mechanism behind is not clear. This project assesses the notion that air pollution particles reach the gut where they activate the gut's immune system, subsequently triggering systemic inflammation and metabolic and cardiovascular disease. Gaining insights into the mechanisms of air pollution-induced metabolic and cardiovascular disease could have a major impact on public health, as health risks due to air pollution are still highly prevalent and associated with serious cardiovascular morbidity and mortality that limit healthy aging.

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16. MODULATING MICROGLIAL METABOLISM  
FOR HEALTHY AGEING

Prof. Dr. Lawrence Rajendran, Systems and Cell Biology  
of Neurodegeneration, University of Zurich, Switzerland  
CHF 100'000

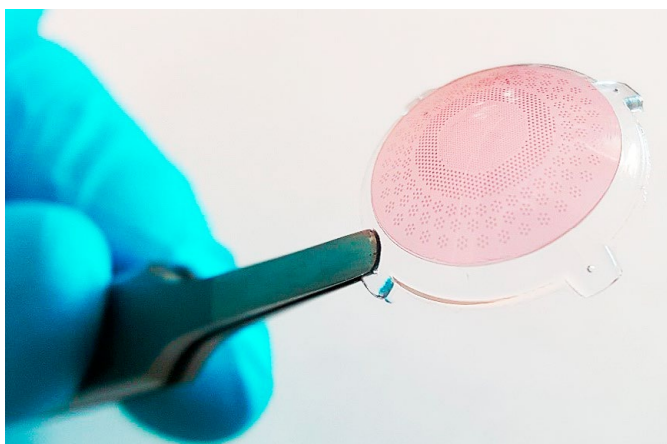
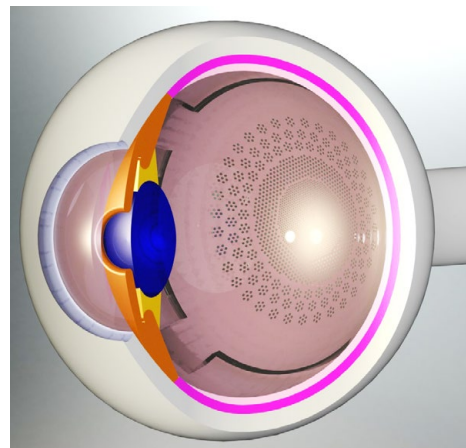
It was recently identified that during ageing, a decline in the anabolic, insulin/nutrient signalling occurs. This suggests that when there is an onset of catabolic metabolism in the brain during ageing, cells such as microglia, in particular, enter into a starvation mode as their nutrient sensing mechanisms decline and thus, they become more phagocytic. This makes them to indiscriminately prune / remove synapses, thus contributing to frailty and synapse loss during ageing. It is proposed that by modulating microglial phagocytic activity, it would be possible to regulate synapse loss and extend brain health span.

OPHTHALMOLOGY RESEARCH

17. PRE-CLINICAL VALIDATION OF AN INJECTABLE, SELF-OPENING, AND FREESTANDING RETINAL PROSTHESIS FOR FIGHTING BLINDNESS

Prof. Dr. Diego Ghezzi, Institute of Bioengineering, EPFL  
École Polytechnique Fédérale de Lausanne, Geneva,  
Switzerland  
CHF 495'000

Retinal prostheses emerged as promising technology to restore a clinically useful form of vision. This project overcome the limitations of current prostheses by providing a pre-clinical validation of a device able to restore a visual field higher than  $40^\circ$  and a visual acuity higher than 20/300, via electrophysiological and histological experiments in mini-pigs. The goal is to provide evidence in order to move forward the technology into a mono-centric clinical trial.



Left: The retinal prosthesis, the POLYRETINA Device, Right: Simulation of POLYRETINA upon implan-tation



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18. FUNCTION AND MODULATION OF THE COMPLEMENT  
REGULATOR PROPERDIN AT THE RETINAL PIGMENT  
EPITHELIUM

Prof. Dr. Volker Enzmann, Department Ophthalmology,  
University Hospital Bern, Inselspital, Switzerland  
CHF 232'000

Age-related degeneration of the retina currently affects million Europeans over the age of 60. It is associated with an inflammatory response to modified "self-elements" at the interface of the eye and the rest of the body. The aim of this project is to analyse the contribution of the local barrier cells, the retinal pigment epithelium, to the dysregulation of soluble immune molecules, called the complement system. The second aim is to dampen the over-activation of this system in the eye using an antibody against properdin, its only known positive regulator.

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19. IDENTIFICATION AND TREATMENT OF NON-CODING  
USH2A VARIANTS UNDERLYING USHER SYNDROME AND  
RETINITIS PIGMENTOSA

Prof. Dr. Hannie Kremer, Donders Institute for Brain,  
Cognition and Behaviour, Radboud University Medical  
Center, Nijmegen, The Netherlands  
CHF 460'000 (EUR 397'000)

The USH2A gene is the most frequently mutated gene in Usher syndrome (USH), affecting both hearing and vision, and is implicated in ~10% of persons with autosomal recessive retinitis pigmentosa (arRP). In a significant proportion of patients with arRP and USH, specifically USH type 2 (USH2), only one or no genetic defect could be found in the protein-coding DNA segments of the USH2A gene. Here, it is proposed to identify defects in the non-coding parts of the USH2A gene and develop novel treatments for these defects by targeting the mutant RNAs.

### III. FUNDING STATISTICS

In an exceptional year 69 project applications or project outlines ('External projects') were submitted to the foundation of which 19 external projects were approved with a total amount of CHF 5'818'960. The foundation additionally approved CHF 110'000 for one own project. The total amount of contributions in 2017 amount to CHF 5'928'960.

Each application is sent out for peer-review to 1-2 international experts. Reviewers are asked to evaluate scientific quality, feasibility and potential impact of the project. In 2017, the foundation recruited 90 new international experts to review the submitted project applications in the evaluation and selection process.

From 2013–2017 the funding rate over all received application was 26%.

In 2017 we received 69 applications. 46 applications came from within Switzerland and 23 from abroad. We funded 13 Swiss and 6 international applications.

# VELUX STIFTUNG

## SUMMARY OF CONTRIBUTIONS (IN CHF)

	2017	2016	2015	2014	2013
<b>External projects</b>					
Daylight	<b>2,140,160</b>	1,287,185	728,800	1,096,500	0
Healthy Ageing	<b>2,491,800</b>	3,511,000	2,212,800	794,000	808,000
Ophthalmology	<b>1,187,000</b>	867,700	1,048,000	0	1,530,550
Medicine/Biology	<b>0</b>	0	210,000	400,000	277,000
<b>Subtotal "External projects"</b>	<b>5,818,960</b>	5,665,885	4,199,600	2,290,500	2,615,550
thereof					
Switzerland	<b>3,977,900</b>	3,376,485	2,486,600	1,930,500	2,410,550
International	<b>1,841,060</b>	2,289,400	1,713,000	360,000	205,000
<b>Own projects</b>					
Scientific workshops			80,000	100,000	30,000
Daylight Award				360,000	353,750
Daylight Academy		1,200,000	200,000		
Healthy Ageing Initiative	<b>110,000</b>	320,000			
<b>Subtotal "Own projects"</b>	<b>110,000</b>	1,520,000	280,000	460,000	383,750
<b>TOTAL</b>	<b>5,928,960</b>	7,185,885	4,479,600	2,750,500	2,999,300

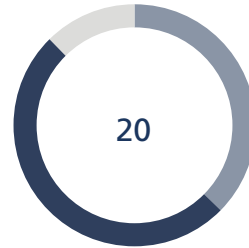
# VELUX STIFTUNG

CONTRIBUTIONS BY FUNDING AREA (IN MCHF)

NUMBER OF GRANTS BY FUNDING AREA



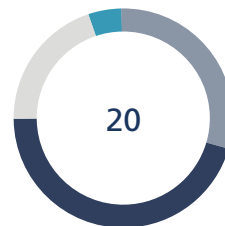
2017



2016



2015



2014



2013



- Daylight Research
- Healthy Ageing Research
- Ophthalmology
- Medicine / Biology
- The size of the circle represents the number in the circle.



# FOUNDATION

## IV. MISSION & BACKGROUND

The Velux Stiftung is an independent charitable foundation supporting research projects in the areas of daylight, healthy ageing and ophthalmology. The foundation is active worldwide and supports innovative projects which generate lasting progress for the benefit of mankind.

The Velux Stiftung was founded 1980 by Villum Kann Rasmussen, a Danish engineer. He developed a novel window construction that could be installed in sloping roofs, which he named "VELUX" ("Ve" for ventilation, and "Lux" for light). In 1941 he started his own company, the V. KANN RASMUSSEN & CO. Its purpose is the development and manufacturing of efficient constructions for the exploitation of daylight in buildings.

## V. FOUNDATION BOARD

In 2017 the board of the Velux Stiftung consisted of five members. Since 1st January 2017 Ms Lykke Ogstrup Lunde is Chairwoman of the board:

**Lykke Ogstrup Lunde, Chairwoman**

**Asger Høeg**

**Leif Jensen**

**Villum Ogstrup-Pedersen**

**René Schürmann**



From left to right: René Schürmann, Villum Ogstrup-Pedersen, Lykke Ogstrup Lunde, Leif Jensen and Asger Høeg.

## VI. MANAGEMENT

The staff of the foundation increased with Ms Lydia Moreno taking up the part-time position as Program Manager of the Daylight Academy in September 2017.

**Lukas von Orelli, Director**

**Kirstin Kopp, Scientific Officer**

**Beatrice Merkli, Back Office**

**Lydia Moreno, Program Manager Daylight Academy**



Lukas von Orelli



Kirstin Kopp



Beatrice Merkli



Lydia Moreno

## VII. OPERATIONAL EXCELLENCE

### A) DIGITALIZATION

The foundation year started with an environmentally effective change. A new board software was implemented and all project application documents as well as the more general documents of the foundations are now shared solely on an electronic platform which presents a major decrease in the amount of printed paper.

This can be seen as a first step towards the digitalization of the business processes within the foundation. While certain processes, like making the board documents available, have been digitalized recently, other digital processes are outdated, and some analogue business processes have reached an importance that make it necessary to think about the digital future of the foundation. A general concept for digital processes is in the process of being established.

### B) IMPACT ASSESSMENT

Funding projects that make a change and cause impact is at the core of the foundation's mission. All project results are valuable, but the foundation would like the grantees to take their results a step further. The application process therefore asks specifically what the principal investigator will do to create outcome and enhance the potential for impact. The foundation wants to take aim at evaluating the different outcomes which are reported in the scientific reports. An evaluation should improve the selection process and render account on how well the money is spent. Impact evaluation has its roots in the social sector which is why the Velux Stiftung invited Professor Volker Then from the Center of Social Innovation in Heidelberg and Dr Konstantin Kehl from the University of Applied Sciences in Zürich to give a two-day workshop on 'Impact assessment'. They presented the tools used to evaluate impact in their fields to eight representatives of four different science funding foundations.



## VIII. FINANCIALS

The Velux Stiftung pursues investments that have the potential to generate substantial and long-term total returns that offset inflation, in order to make grants according to its purpose in the long run. The foundation's assets are managed by carefully selected fund managers that are chosen by the investment committee and approved by the foundation board. These investment managers are monitored and evaluated regularly.

### IMPACT INVESTMENTS – CARING ABOUT CLIMATE AND THE ENVIRONMENT

Because the Velux Stiftung considers the foundation's investment management to be an integral part in the implementation of its mission: to cause impact that contributes to a sustainable improvement for the benefit of mankind.

**The foundation therefore has pledged to invest up to 10% of its assets into thematic impact investments by 2020. After having reached the 10% mark for thematic impact investments, such investments shall be preferred to other investments with an equal market rate return/risk profile, with the vision is to be invested up to 25% into such products by 2025.**

**The board further agreed to implement a carbon-divest strategy to replace fossil fuel investments, reduce carbon exposure of investments and avoid particularly coal-related investments by 2020.**

With this policy, the foundation board decided for the first time to engage in a crucial topic by using its assets instead of the funding budget.

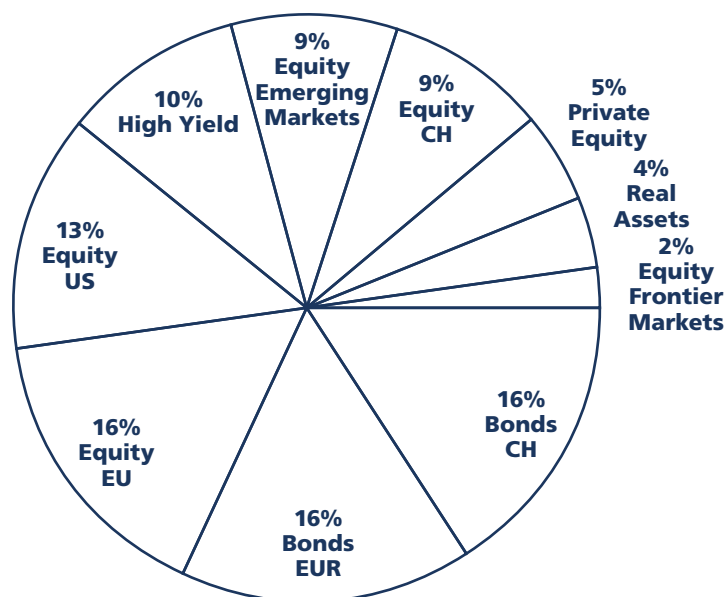
The thematic investments will focus on having a positive impact in the prevention or the tackling of consequences of climate change. This emphasis covers one part of the legal purpose of the foundation, namely preserving the ecological stability of nature.

## ESG COMPLIANCE

In line with its charitable purpose the Velux Stiftung follows the ESG investment principles. All investments have to comply with the principles of the UN Global Compact, a United Nations initiative to encourage businesses worldwide to adopt sustainable and socially responsible policies in the areas of human rights, labour, the environment and anti-corruption. The annual ESG screening about the compliance with the UN Global Compact showed one mandate with controversial investments which will be exchanged.

## DISTRIBUTION OF ASSETS

In 2017 the development of the financial markets led to a beneficial return on our total financial assets of 13% with a total value of MCHF 228.



## INVESTMENT COMMITTEE

**Lykke Ogstrup Lunde, Chairwoman of the foundation board**

**Leif Jensen, Member of the foundation board**

**Lukas von Orelli, Director of the foundation**

**Thomas Overvad**

**Per Skovsted**

## IX. ENGAGEMENT FOR THE PHILANTHROPIC SECTOR

The Velux Stiftung continuously strives to improve itself and wants to take a role model for other grant-making foundations. The foundation wants to share how it pursues an impact-oriented funding approach, a competitive application procedure and the initiatives to create leverage with own projects. We therefore engage in the philanthropic sector and disseminate our knowledge by reaching out through various activities.

The Velux Stiftung was engaged on several levels in the association of the Swiss grant-making foundations, SwissFoundations (SF). Lukas von Orelli is president since 2016. In this function he gave several talks and participated at various events and meetings in the philanthropic sector as well as in political discussions about the future legislation changes.

Since 2017 Kirstin Kopp is the co-leader of the working group Education, Research and Innovation together with Simon Sommer from the Jacobs Foundation. The working group organizes knowledge transfer and networking opportunities for the foundations engaged in Education, Research and Innovation.

IMPRINT

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