



Der Helmholtz-Fonds e. V.

For progress
in metrology



HELMHOLTZ
FONDS e.V.



"We would like to name the fund **„Helmholtz Fund“**

after the first **great president** of the Imperial

Physical Technical Institute to express that the **work at our institute**

will always be performed **in his spirit** and that this fund is especially

intended to help ensure that the work of the Imperial

Physical Technical Institute will always meet the **highest demands of science.**"

Emil Warburg

The third president of PTB's predecessor, the Physikalisch-Technische Reichsanstalt (PTR, Imperial Physical Technical Institute), and initiator of the Helmholtz Fund, in his appeal to establish the Helmholtz Fund in July 1912

“Research in natural science always forms the solid foundation of technical progress, and the industry of a country will never acquire nor maintain an internationally leading position if the same is not simultaneously at the pinnacle of the progress made in natural science.”

Werner von Siemens

German industrialist and founder of modern electrical engineering, together with Hermann von Helmholtz one of the two founding fathers of the PTR, the first major non-university research institution in the world, and former member of the Helmholtz Fund

“When something great is to be created, supporters and networks can help. Leading young scientists need visibility from an early stage. The Helmholtz Prize supports talents in the field of metrology – a discipline that plays a significant part in meeting the technical, economic, social and ecological challenges of humankind.”

Dr. Nathalie von Siemens

President of the Board of Trustees of the Siemens Stiftung
Treasurer of the Helmholtz Fund e. V. and
great-great-granddaughter of Werner von Siemens and Hermann von Helmholtz



Dr.-Ing. Prof. h. c. Frank Härtig
Vice-President of the
Physikalisch-Technische Bundesanstalt and
Vice-Chair of the Helmholtz Fund e. V.

Prof. Dr. Cornelia Denz
President of the
Physikalisch-Technische Bundesanstalt and
Chair of the Helmholtz Fund e. V.

Foreword

We use metrology to measure everything, and we measure things every day: precise, reliable measurements based on units that have been agreed internationally provide the foundation for science, technology and industry. Without these units, there would be neither aerospace industries nor navigation systems, or even reliable weighing instruments at the supermarket and a precise time on train station clocks.

This also applies to the big challenges of our future, for example, technologies for the energy transition, digital transformation and quantum technologies, which require a scientific metrological foundation that PTB provides. Without this foundation, it would hardly be possible to manufacture high-quality products efficiently. Precision measurements are necessary for transportable commodities like gas, water and electricity to be invoiced to the exact amount. Thanks to these measurements, we can trust the stated amount of gas that we have pumped at the gas station and the results of a blood test ordered by a doctor. In short: new precision measurements and innovative measurement procedures are helping to improve the quality of life and work world. And they often lead to new insights, always making it a little easier for us to understand the world.

These are good reasons to be interested in metrology. Could you see yourself shaping the transformations of technologies in the future?

For more than 100 years, the Helmholtz Fund e. V. has been a reliable and committed partner of metrology, as well as of the research institutions and companies that are active in this field. The Helmholtz Fund e. V. makes progress in precision metrology visible, discusses it and drives it forward. We bring experts from research and industry together in symposia, conferences and workshops. We also promote scientists of tomorrow and reward outstanding work, not least with the renowned Helmholtz Prize.

You can make use of and support this lasting success story in different ways, for example, by participating in our events, by becoming a member in our association or by making a donation. We would appreciate your support very much!

Prof. Dr. Cornelia Denz

Dr.-Ing. Prof. h. c. Frank Härtig

The Helmholtz Fund e. V.:

Making a commitment to progress in metrology

The Helmholtz Fund e. V. is a unique non-profit association that has always been dedicated to promoting scientific progress in metrology. In honor of the co-founder and first President of the PTR, the exceptional researcher Hermann von Helmholtz, the association was named after him: Helmholtz Fund e. V.

Some 25 years after the Imperial Physical Technical Institute (PTR) was founded in Berlin, the members of the "Kuratorium" (Advisory Board) of the PTR at that time founded the Helmholtz Fund e. V. in 1913. On the initiative of the PTR President at that time, Emil Warburg, the Advisory Board members (including, amongst others, Carl von Linde, Walther Nernst, Max Planck, Wilhelm Conrad Röntgen, Wilhelm Wien as well as the brothers Arnold and Wilhelm von Siemens) united to form an unparalleled sponsoring association.

In the tradition of the founding fathers of the PTR, private funds were to be raised and managed through the Helmholtz Fund e. V. to support the scientific work of the PTR, to contribute to recruiting "outstanding employees" to the PTR, to financing "valuable instruments" and to supporting "journeys to similar institutes in Europe and America".

Even though the wording of the Fund's objectives may have been adapted to the respective zeitgeist over the years, one thing has always remained the same: The Helmholtz Fund e. V. has been an intermediary between both sides of the metrology coin - fundamental metrology research and application - and continues to bring these sides together and push them forward today.

Metrology is of outstanding social and economic significance.

Metrology is essential for our modern world. It is the scientific foundation for measurement and all of its applications. All of us are confronted with it in our everyday lives because it provides the right measure to everything. No scientific experiment, no industrial process and no trade of goods and merchandise can do without quantification. Measurement technology and its scientific backbone, metrology, have nowadays almost become a given.

Most of the time, we do not even think about the metrological know-how required to make our high-tech everyday lives work. When was the last time you were surprised that your navigation system knew where you were within a few meters? When did you last ask yourself how much smaller the structures on electronic chips can get? And when was the last time you felt impressed by what people can read from your body when you are put into the tunnel of a MRI scanner? All of this is made possible through applied science and a lot of applied metrology.

For this reason, the mandate for a national metrology institute such as PTB is to ensure a reliable and progressive metrological infrastructure which meets both the highest requirements of science and high-tech industry and the general conditions of legal metrology in everyday life. The Helmholtz Fund e. V. supports this task with all of its resources.

"To this day, PTB develops measurement technology for major technological challenges – from energy transition to climate change and digital transformation – and will therefore, together with the Helmholtz Fund e. V., continue to make our lives as easy and reliable as possible in the future as well."

(Prof. Dr. Cornelia Denz)

"Already more than 100 years ago, the Helmholtz Fund was supporting metrological science by promoting research, early-career professionals in science and technology as well as international cooperation"

(Dr. -Ing. Prof. h. c. Frank Härtig)



The four focus areas of the Helmholtz Fund e. V.

All activities of the Helmholtz Fund e. V. support progress in metrology to a high degree. They are exclusively financed through membership fees and donations to the Fund.

Financial support for PTB seminars,
workshops and symposia

Promoting scientists of tomorrow

Rewarding excellent research

Awarding of the Helmholtz Prize

The four fields of activity of the Helmholtz Fund e. V.

The Helmholtz Fund e. V. promotes scientific discourse!

Financial support for PTB seminars, workshops and symposia

Mutual exchange about the current developments in all subdisciplines of metrology is the guiding principle of these events. Under the leadership of PTB scientists, experts from the fields of industry and economics, universities, other research institutions and PTB itself meet here.

Since the Helmholtz Fund began supporting events in 1976, more than 300 scientific events have taken place. The success of the promoted interdisciplinary scientific discourse is consistently reflected in technology transfers from science to industrial application. These events have been the catalyst that promoted innovation for many new developments.

The Helmholtz Fund e. V. invests in brilliant young thinkers!

Promoting early-career scientists

The Helmholtz Fund e. V. is greatly committed to supporting young PTB scientists with great commitment. It provides financial grants for research trips and for attending events as part of PTB's doctoral programme.

In addition, the Fund is dedicated to supporting school-age students who are taking part in competitions like "Jugend forscht" (a contest for young STEM researchers) or the German Young Physicists' Tournament, which is organized by the German Physical Society (DPG), amongst others. For example, the awardees are invited to visits lasting several days, internships or research stays at PTB.

Rewarding excellent research

The Helmholtz Fund e. V. awards cash prizes to PTB's scientists for their outstanding scientific work in the field of metrology.

Excellent dissertations by PTB's doctoral candidates along with outstanding results attained by apprentices when finishing their vocational training at PTB are recognized through these cash prizes.

The Helmholtz Fund e. V. rewards outstanding commitment!

Awarding of the Helmholtz Prize

The Helmholtz Prize is the most distinguished German award in metrology. With this prize, the Helmholtz Fund e. V. and the

Stifterverband für die Deutsche Wissenschaft e. V. honor outstanding scientific and technological research in the field of "precision measurements in physics, chemistry and medicine". The prize is open to scientists from all over Europe and, as a rule, is awarded every two years.

The Helmholtz Prize is considered to be the "Nobel Prize in Metrology".

Since 2016, the Helmholtz Prize has been awarded in the two categories of "fundamental research" and "applied metrology". Each category is endowed with 20,000 euros.

Back in 2001, the Helmholtz Prize represented very early appreciation of the efforts of my doctoral candidate, Thomas Klar, and me to bypass the diffraction limit in the optical microscope. More than a decade before the Nobel Prize Committee, the Helmholtz Fund e. V. proved that it honors groundbreaking improvements in measurement procedures and is able to identify important protagonists at an early stage.



Prof. Dr. Stefan W. Hell

Director of the Max Planck Institute for Biophysical Chemistry and Head of the NanoBiophotonics department, awardee of, among others, the Helmholtz Prize (2001) and the Nobel Prize for Chemistry (2014)

Awarding excellence in metrology: the Helmholtz Prize

The Helmholtz Prize sets a very special standard in the world of metrology. It is considered to be the "Nobel Prize in Metrology" and therefore is the flagship of the Helmholtz Fund e. V.

The Helmholtz Prize was first awarded in 1973, on the occasion of the 60th anniversary of the Helmholtz Fund e. V. Since then, more than 70 scientists have been awarded the Helmholtz Prize for their outstanding performance in the field of precision measurements.

All of these awardees, which have each been selected by a jury consisting of renowned experts in precision metrology, have sustainably advanced the art of measurement with their work. Many of them are now ranked amongst the world's most renowned metrologists.

Especially in the case of Stefan Hell, who received the Helmholtz Prize in 2001, the jury members proved their excellent ability to recognize pioneering developments. The Helmholtz Prize was the first major award for the STED microscopy developed by Mr. Hell, before it was joined by a range of other renowned prizes over the following years, culminating in the awarding of the Nobel Prize for Chemistry in 2014.



In 1891, the Helmholtz medal was awarded to Hermann von Helmholtz in honor of his 70th birthday. Friends and colleagues had sponsored it specifically for this occasion. It is the distinguishing feature of the Helmholtz Fond e.V., together with the logo.

“I am a member of the Helmholtz Fund e. V. because we need early-career scientists and must therefore promote them.”



Veronika Martens
Individual member of the Helmholtz Fund e. V.

Together we are a strong community. Join us!

Discover the advantages of becoming a member of the Helmholtz Fund e. V.!

The Helmholtz Fund offers you the best conditions to keep you right at the cutting edge of the increasingly fast-paced international world of metrology.

As a member of the Fund, you will gain easy and direct access both to general developments and specific scientific and technological progress in metrology. For example, you will receive PTB publications, such as annual and seminar reports, on a regular basis.

Be our guest at seminars and symposia supported by the Fund and discuss the latest developments in metrology with recognized experts while being at the heart of the metrology scene. You are of course exempt from participation fees, and you can even suggest seminar topics that you find interesting.

You can also take advantage of carefully chosen events organized by the Fund to present your company and to develop new partnerships.

Become a part of our community that is committed to precision metrology. Through our scientific and economic dialogue, we are creating something valuable for the future. After all, the greater the number of people and companies involved in the Helmholtz Fund e. V., the more we can achieve.

Don't hesitate to contact us. We are looking forward to meeting you!

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We stand behind the Helmholtz Fund e. V.



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The Supervisory Board
manages the Helmholtz Fund
e. V. and currently consists of
the following members:

Membership application for the Helmholtz Fund e. V.

☐

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☐

Company membership

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Mr./Ms./Mx.

Title

Company

First name

Department

Last name

Date of birth

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Post code

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Place

URL

Country

PUBLICATION IN THE LIST OF MEMBERS

☐

With company address and contact person

☐

With company address, but no contact person

☐

Agree

☐

Disagree

I/We hereby declare that I/we agree to be named as a member/members of the Helmholtz Fund e. V. as part of its public relations work.

MEMBERSHIP APPLICATION AND MEMBERSHIP FEE

PLEASE DELETE AS APPROPRIATE.

☐

I/We hereby apply for a Helmholtz Fund e. V. membership.

☐

I/We hereby declare that I/we agree to the bylaws of the Helmholtz Fund e. V.

☐

I/We declare that I/we support the purpose of the activities of the Helmholtz Fund e. V. and will observe the members' rights and duties.

I/We agree to pay a voluntary yearly membership fee of €.

Place, Date

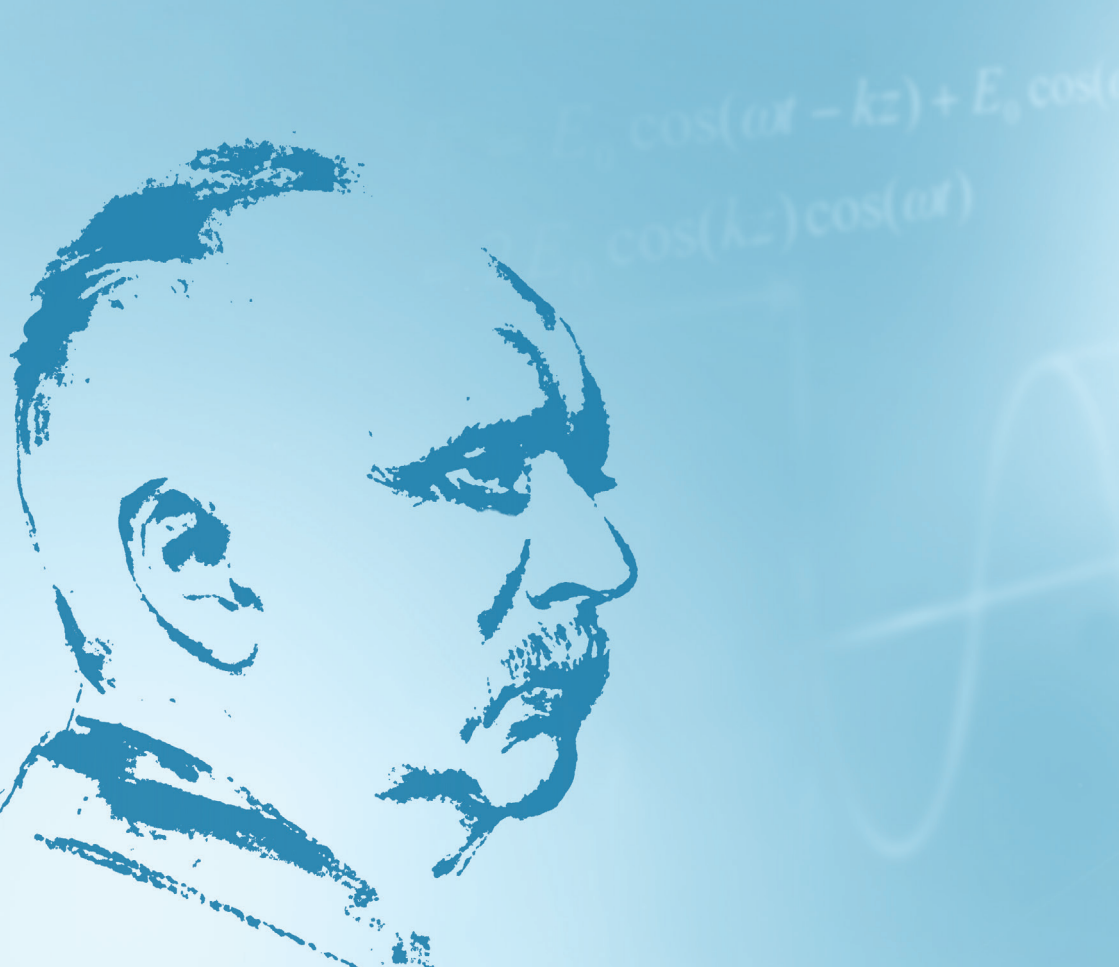
Signature

- The currently valid version of the bylaws can be found here: www.helmholtz-fonds.de/ueber-uns/.
- Please send the filled in and signed application form to our executive office.
Helmholtz-Fonds e. V., c/o Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany;
Email: helmholtz-fonds@ptb.de. After having received the application, we will send you the membership documents via mail.
- You can cancel this application within 14 days.
- For questions or further information, please send an email to helmholtz-fonds@ptb.de.



HELMHOLTZ FONDS e.V.





"Working in the best interests of the nation, scientists seek to increase the knowledge and insights that can serve to enhance industry, wealth and the beauty of life to improve political organization and the moral development of each individual."

Hermann von Helmholtz

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