

Program:

- **Welcome & Overview**
- **Gerda (30') S. Schoenert**
- **Double Choz (30') Ch. Buck**
- **keV neutrinos as dark matter (30') F. Bezrukov**
- **Moessbauer neutrinos (30') J. Kopp**
- ** **Lunch****
- **Lab visits**
- **free time in Heidelberg**

Max Planck Society for the Advancement of Science e. V.



General Mission

The Max Planck Society for the Advancement of Science is an independent, non-profit research organization. It was founded on February 26, 1948, and is the successor organization to the Kaiser Wilhelm Society, which was established in 1911. The primary goal of the Max Planck Society is to promote research at its own institutes.

Promoting the Best – the Harnack Principle

The scientific definition of the Max Planck Society derives from its understanding of research: Max Planck Institutes are established only on world leading research topics. Institutes are composed of divisions led by directors which are hired according to the Harnack principle. The directors of each division can freely determine their research topics with excellent working conditions.

Mission

The research institutes (MPIs) perform basic research in the interest of the general public in the natural sciences, life sciences, social sciences, and the humanities.



Max Planck Institutes

80 institutes, research centres, laboratories and project groups

13,400 employees, included in this approximately **4,700** scientists

12,100 student assistants, fellows of the International Max Planck Research Schools, doctoral students, postdoctoral students, research fellows and visiting scientists.

Budget


82 % public funding from the Federal Government and the German States.

18 % from donations, members contributions and from funded projects.

Total budget for 2008: **1.4 billion €**.


History of the Institute

History of the Institute




MPI for Medical Research

The MPIK emerged in 1958 as a "spin-off" from the MPI for Medical Research, which was founded as a "Kaiser-Wilhelm-Institut" in 1930.




Walther Bothe
(1891 – 1957)

Walther Bothe (Nobel Prize 1954), director of the "Institut für Physik", gave major contributions to modern nuclear physics (nuclear photo effect, first German cyclotron).




MPI for Nuclear Physics in the 1960s



Wolfgang Gentner
(1906 – 1980)

Wolfgang Gentner, Bothe's coworker for many years, founded the MPIK and became its first director. Since 1966 a board of directors heads the institute.

MAX PLANCK INSTITUTE FOR NUCLEAR PHYSICS



History of the Institute

Some Research Highlights

1958 Discovery of the Mößbauer effect (recoil-free nuclear spectroscopy with significantly better precision): Nobel Prize 1961.


1959 – 2000 Investigation of nuclear reactions using particle accelerators (cyclotrons, tandems, CERN and DESY). Clarification of the shell structure of nuclei, nuclear fission, structure of the nucleons.

1960 – 1980 Radiometric dating of meteorites, tektites, moon rock and impact craters: e. g. Nördlinger Ries in southern Germany.



since 1964 Cosmic dust research using satellites and probes (CASSINI-Mission: Saturn).

since 1964 Atmospheric environmental research with rockets, balloons and aircraft.


1990 First production of gram-sized samples of fullerene powder (Wolfgang Krätschmer).

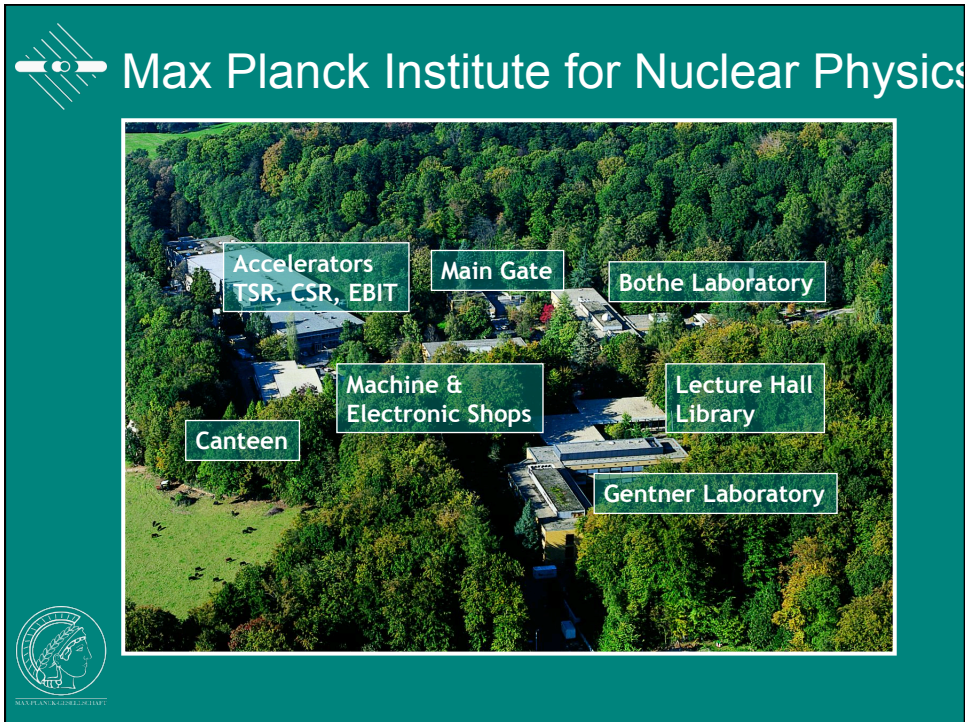


Rudolf Mößbauer
(* 1929)

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The MPIK today
... some numbers:

2 Research areas

- Astroparticle Physics
- Quantum Dynamics

5 Divisions / Directors

9 Independent research groups

392 employees

- 88 Scientists
- 122 PhD Students
- 43 Diploma Students
- 86 Guest scientists

Further research:

- Atmospheric physics
- Cosmic dust
- Carbon molecules and fullerenes

Total budget (2008): 27.2 million €

MAX PLANCK INSTITUTE FOR NUCLEAR PHYSICS

Particle and Astroparticle Physics @ MPIK

Division of Prof. Hofmann

- HESS, LHCb, Gerda, future: CTA
- astrophysics theory

Division of Prof. Lindner



Research Topics:

- Neutrinos
- Dark Matter
- Physics beyond the Standard Model

- experimental projects in neutrino physics
- very broad theoretical particle & astroparticle physics



Theory
& Experiment

+2 junior groups:

Emmy Noether group Resconi
→ ICEcube experiment

ERC group Rodejohann
→ theory

Current Activities of the Division

Experimental Projects:

- **Gerda:** Search for neutrino-less double beta decay
- **Double Chooz:** Search for θ_{13}
- **Borexino:** Solar neutrino spectroscopy
- **IceCube:** Neutrino telescope
- ...

Theory: broad spectrum of topics

- **phenomenology**
- **data analysis**
- **physics beyond the SM**
- **finite temperature QFT**
- ...

→ topics: EWSB, neutrinos, Dark Matter, Dark Energy

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