

At PSI, researchers investigate the basic structures of matter and fundamental functional principles of nature. They probe the smallest building blocks of matter or pursue questions such as how biological molecules are constructed and how they perform their tasks.

Knowledge gained in this way opens up new approaches to solutions in science, medicine, and technology.

PSI in brief

With 2300 employees and an annual budget of 460 million Swiss francs, PSI is the largest research institute for natural and engineering sciences in Switzerland. It is the central location of Switzerland's large research facilities. As part of the ETH Domain, PSI is a key pillar in the Swiss research landscape and conducts cutting-edge research in the fields of Future Technologies, Energy and Climate, Health Innovation and Fundamentals of Nature.

By collaborating with industry, PSI strengthens the innovative power of Switzerland as a business location. Additionally, through the founding of spin-offs, PSI transfers its latest scientific findings directly into the economy. PSI is already investing today in the experts of tomorrow: around a quarter of PSI employees are postdoctoral researchers, PhD students or trainees.

Research at PSI — fundamentals of nature

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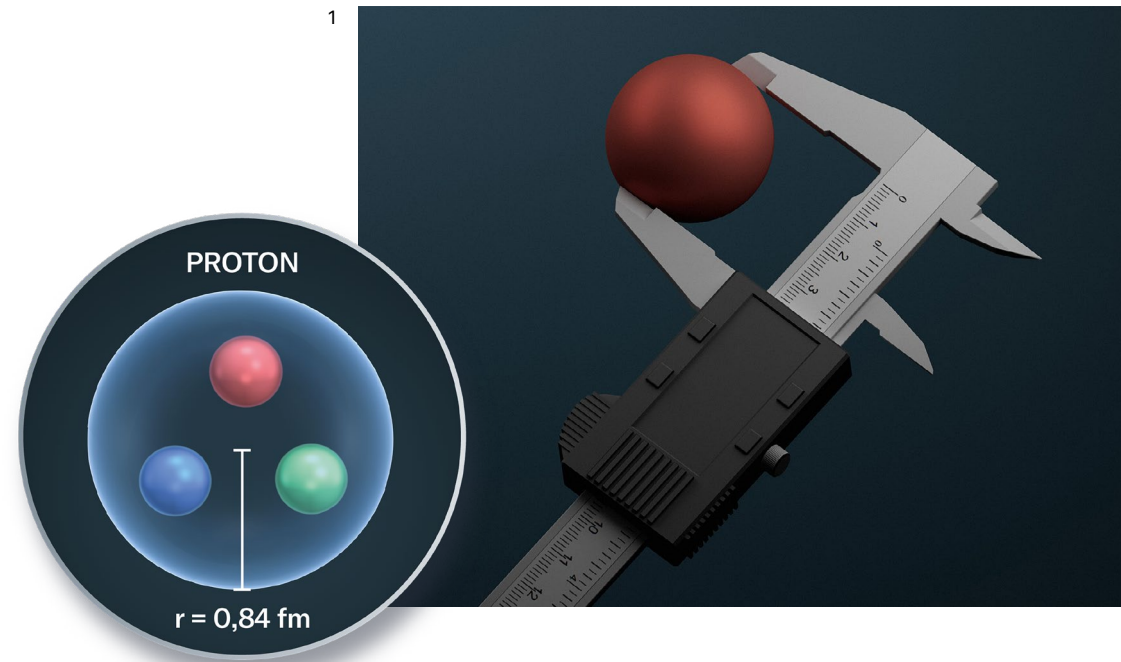
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For further information, please scan the QR code
or visit the following website:
www.psi.ch/en/research/fundamentals-of-nature



At PSI, researchers answer fundamental questions about the basic structures of matter and functional principles in nature.



Proton radius

In particle physics, PSI researchers focus on fundamental questions concerning the basic structures of the world. They investigate the composition and properties of elementary particles, the smallest building blocks of matter.

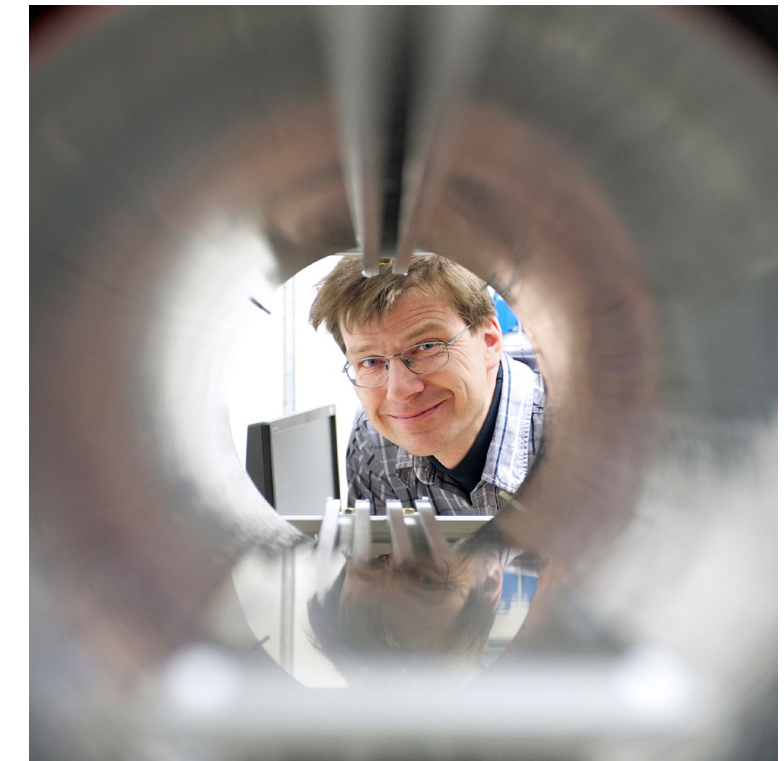
With their findings, they are challenging prevailing models of physics, hoping to close remaining gaps in our knowledge. For example, they have measured the radius of the proton, a building block of the atomic nucleus, more precisely than ever before. It is an unimaginably tiny 0.00000000000000084087 metre.

Proton accelerator

The proton accelerator facility HIPA is at the heart of PSI. In effect, the protons from this facility drive three large research facilities: the Swiss Spallation Neutron Source SINQ, the Swiss research infrastructure for particle physics CHRISP, and the Swiss Muon Source μS .

World-class research is carried out at each of these facilities – in materials science, space research, particle physics, and medical research, for example.

1 In their search for answers to fundamental scientific questions, researchers at PSI are measuring the building blocks of nature, such as the proton, more precisely than ever before. 2 To enable the proton accelerator HIPA to do its job for more than 50 years, a big team and a wealth of experience have been vital. 3 Researchers' curiosity is a crucial driver for ever-new discoveries made with the help of PSI's large research facilities.



In the machine room of life

Proteins are considered the building blocks of life. At PSI, researchers investigate how they are constructed and how they control processes in living cells. Their research interests also extend to larger biological structures such as the cytoskeleton and the nervous system, not least the brain, one of nature's most complex structures.

They want to understand the fundamentals of biology to find out how certain diseases or symptoms of old age arise – since only then can targeted active substances be developed to treat them.