

Research Group of the Steady High Magnetic Field Facility Hefei Institutes of Physical Science, Chinese Academy of Sciences



磁体技术和综合性能国际领先的稳态强磁场实验装置

The Steady High Magnetic Field Facility, of which the magnet technology and the overall performance is world-leading.



国内首套28MW高稳定度直流电源

The first high-stability DC power supply of 28 MW in China.



国际独创的STM-MFM-AFM组合显微系统
The unique STM-MFM-AFM combo system.

The research group has broken the international technical barriers and achieved a major breakthrough in the design, manufacturing, and key technology of steady high magnetic field facility through independent self-reliance. It builds three water-cooled magnets that set world records, the world's second hybrid magnet at 40-Tesla level, and a series of state-of-art scientific experiment systems including the world's only scanning tunneling microscope usable in water-cooled magnets, the unique STM-MFM-AFM combo system, and the world-leading integrated extreme experimental conditions (high magnetic field, ultra high pressure and low temperature), which makes China now own the world's first-class scientific research condition of steady high magnetic field. The successful construction of the Steady High Magnetic Field Facility has strongly supported China's frontier scientific exploration, including physics, material science, chemistry, life sciences etc. It has produced a number of scientific achievements that have significant international influences. The facility not only becomes a core foundation of Hefei Science Center, Chinese Academy of Sciences, but also a key foundation for the construction of Hefei National Science Center.

Outstanding contributors of this research group

Kuang Guangli

As the project manager, he determined the overall design of research plans and technical roadmaps. He presided over the design and manufacture of the large bore Nb3Sn superconducting magnet of CICC type.

Gao Bingjun

As the chief engineer, he guided the design and construction of different types of magnets. He proposed a new design scheme of water-cooled magnets, based on which a series of world record setting water-cooled magnets were built.

Zhang Yuheng

As the chief scientist, he determined the scientific goal and research direction of the Steady High Magnetic Field Facility. He also led the team to complete the construction of the experimental measurement system.



水冷磁体比特片和线圈

The Bitter plates and coils of the Tesla water-cooled magnet.

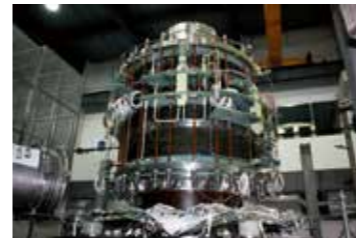


依托稳态强磁场实验装置产出的部分亮点成果
Parts of highlighted work performed on the Steady High Magnetic Field Facility.



40T 混合磁体

The 40 Tesla hybrid magnet.



国内首台大口径CICC型Nb3Sn超导磁体

The first large bore Nb3Sn superconducting magnet of CICC type in China.

稳态强磁场实验装置研究集体

推荐单位：中国科学院合肥物质科学研究院

研究集体主要科技贡献：

该研究集体独立自主、自力更生，打破国际技术壁垒，取得设计、制造与关键技术上的重大突破。创造三项水冷磁体世界纪录，研制成功世界第二强的 40T 混合磁体，研发出国际唯一的水冷磁体扫描隧道显微系统、国际独创的组合显微系统和国际领先的强磁场-超高压-低温综合极端实验条件等先进而独特的科学实验手段，使我国稳态强磁场科学研究条件跃升至世界一流水平。稳态强磁场实验装置的建成，有力支撑了我国物理、材料、化学、生命科学等多学科领域的前沿探索，产出了一大批有国际影响力的高水平成果，不仅成为中国科学院合肥大科学中心的核心基础，更是合肥综合性国家科学中心建设的基石。

研究集体突出贡献者



匡光力 Kuang Guangli

匡光力 中国科学院合肥物质科学研究院

主要科技贡献：项目总经理，确定了总体研究方案和技术路线，主持完成了大口径CICC型Nb3Sn超导磁体的设计、制造工作。



高秉钧 Gao Bingjun

高秉钧 中国科学院合肥物质科学研究院

主要科技贡献：项目总工程师，指导各类磁体的研制，提出了水冷磁体新设计方案，建成创世界纪录的系列水冷磁体。



张裕恒 Zhang Yuheng

张裕恒 中国科学技术大学

主要科技贡献：项目首席科学家，确定了稳态强磁场实验装置上的科学目标和研究方向，领导完成了科学实验测量系统的建设。

研究集体主要完成者

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李洪强 陈治友 张勇



国际唯一的水冷磁体扫描隧道显微镜

The world's only scanning tunnel microscope usable in water-cooled magnets.



国际领先的强磁场-超高压-低温综合极端实验条件

The world-leading integrated extreme experimental conditions (high magnetic field, ultra high pressure and low temperature).

Major contributors

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