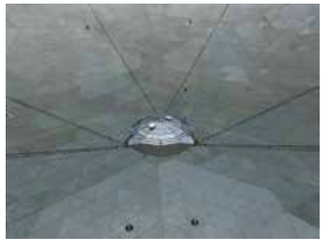
Research Group of Five-hundred-meter Aperture Spherical radio Telescope (FAST) Project
National Astronomical Observatories, Chinese Academy of Sciences

轻型索拖动馈源支撑系统
Light focus cabin suspension driven by cables



轻型索拖动馈源支撑系统和并联机器人二级联调
Light focus cabin suspension driven by cables plus a parallel robot as a secondary adjustable system

The Five-hundred-meter Aperture Spherical radio Telescope (FAST) is the most sensitive single-dish radio telescope in the world, of which China owns the exclusive intellectual property. It will provide unprecedented opportunities for China to achieve major breakthroughs in the related scientific forefront and maintain a leading position in the next 10~20 years. The FAST development and construction represent the independent innovation of China, and achieve the breakthrough from following and imitation to integrated innovation in the related area. The three outstanding innovations of the telescope include: the application of the unique karst giant depression as the telescope site, the independently invented active main reflector, and the light focus cabin suspension driven by cables plus a parallel robot as a secondary adjustable system. A series of key technologies have been developed: large span cable net structure in high strength and high precision, high performance moving optic fiber cable, and large scale and high precision real-time measurement system, and etc., which have promoted scientific and technological progress and industrial upgrades in many high-tech fields in China. FAST's exclusive innovations hold the important practical values that meet the major demands of our country. It will greatly push the economic prosperity and social progress in the western region of China.

Outstanding contributors of this research group

Nan Rendong

Chief scientist and chief engineer, project concept presenter. Lead the team, present three independent innovations, overcome a series of technical problems, complete the project construction.

Yan Jun

Project manager, is fully responsible for the construction of the project. Coordinate all parties to support and ensure the progress of the project. Solve the major key problems and ensure the smooth completion of the project.

Zheng Xiaonian

Executive vice manager, being responsible for the daily management of the project, established the project management system. Concentrating on the key nodes and promoting team building to ensure the project to be completed on schedule.

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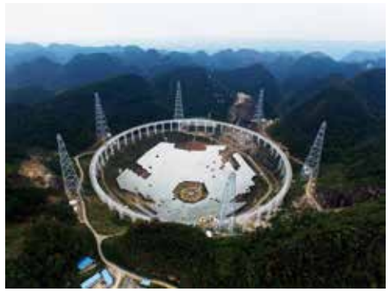

索网结构及反射面单元安装
Cable-net structure and installation of reflector units

多周期重复弯曲光缆
Multi-cycle repeated bending optical cable

FAST鸟瞰全景图
Airscape on FAST site

500米口径球面射电望远镜（FAST）工程研究集体

推荐单位：中国科学院国家天文台

研究集体主要科技贡献：

该研究集体建成具有我国自主知识产权、世界最大单口径、最灵敏的射电望远镜FAST，在未来10~20年将保持世界领先地位，为我国在相关领域科学前沿上实现重大原创突破提供了前所未有的机遇。其研制和建设体现了自主创新能力的显著提升，实现了我国相关装置由跟踪模仿到集成创新的跨越。拥有3项自主创新：利用贵州天然喀斯特巨型洼地作为望远镜台址，自主发明主动变形反射面，自主提出轻型索拖动馈源支撑系统和并联机器人。研发并突破了一系列关键核心技术：高强度高精度大跨度索网结构，高性能动光缆，大尺度高精度实时测量系统等。推动了我国众多高技术领域的科技进步与产业升级，促进了国家相关重大需求的进步与发展，有利于带动西部的经济繁荣和社会进步。

南仁东出席北京市科学技术奖励大会
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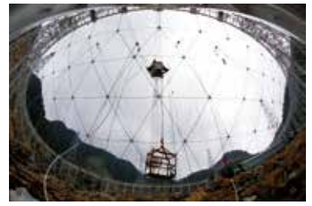
主动反射面侧视图
Side view on active main reflector



索网结构
Cable-net structure