

The Research Group of China's First New Generation Beidou Navigation Satellite Academy of micro satellite Innovation Research Institute of China Academy of Sciences

With the belief of innovation motivates the development, the R&D team has accomplished dozens of break-through technologies, including the CAS navigation dedicated platform (which consists of the frame-panel light-weight structure, single star sensor positioning and high-density integrated electronic architecture), the designing concept of "functional chain", the Ka band inter-satellite link technology of phased array antenna, the seamless time frequency transform, the solid state amplifier made of gallium nitride as well as the high functional anti-radiation CPU and FPGA ("Loongson" LS1E and LS1F model). All these advanced technologies symbolize the icebreaking improvement of CAS into the navigation satellite field, and also make great contributions to China's Beidou Navigation System from regional operation to the global expansion.

Outstanding contributors of this research group

Lin Baojun

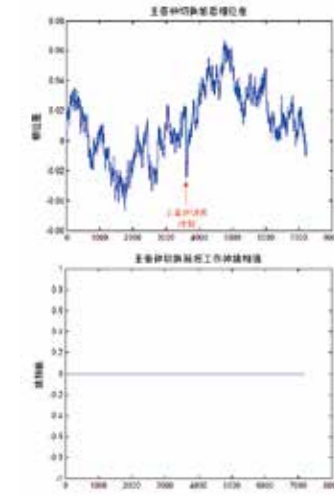
Chief Designer. Dr. Lin is in charge of the R&D work the first generation of Beidou navigation satellite in every aspect, including key technologies solutions, proposal verification and project operations. Under Dr. Lin's leadership, the team has overcome several difficult key technologies. Dr. Lin has made the prominent contributions to the successful launch of the first New Generation Beidou Navigation Satellite.

Li Guotong

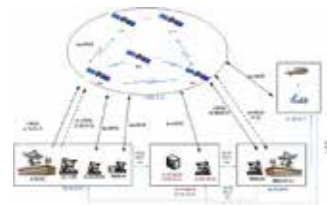
executive deputy commander. Dr. Li is in charge of the R&D work the first generation of Beidou navigation satellite in many aspects, including key technologies solutions, proposal verification and project operations as well as the EE components localization and verification. He organized the writing and publishing of CAS standards for Beidou navigation satellite R&D work and formed the professional management teams for schedules planning, QA and components reliability control. Dr. Li has made the important contributions to the successful manufacturing of the first New Generation Beidou Navigation Satellite.

Shen Xuemin

deputy chief designer. Dr. Shen is responsible for the overall design, assembly, integrated tests and environmental experiments of the satellite. He is mainly in charge of two functional trains: the structure and thermal as well as the payload. Dr. Shen has made the important contributions to the successful manufacturing of the first New Generation Beidou Navigation Satellite.



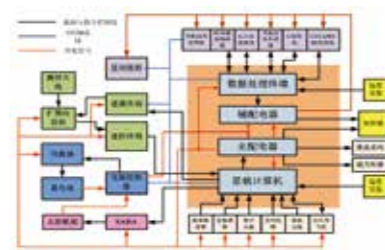
高精度时频无缝切换技术
The accurate seamless time frequency transform



基于相控阵的Ka星间链路技术
The Ka band inter-satellite link technology of phased array antenna

Major contributors

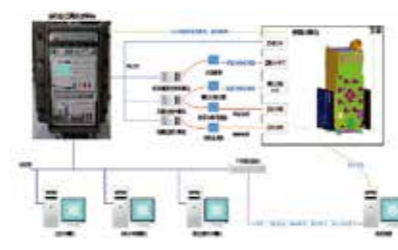
- Lin Baojun
- Li Guotong
- Shen Xuemin
- Gong Wenbin
- Xiong Shujie
- Shen Yuan
- Jiang Guizhong
- Chen Zhifeng
- Zhang Jun
- Wang Xueliang
- An Yang
- Li Kai
- He Yun
- Gu Qijun
- Chen Yong
- Kong Chenjie
- Bai Tao
- Lin Shifeng
- Liu Jing



基于龙芯的综合电子技术
The integrated electronics based in Loongson



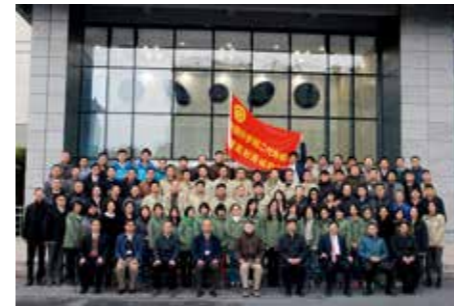
新一代北斗导航卫星首发星发射照片
The Launch of China's First New Generation Beidou Navigation Satellite



整星状态下所有任务剖面闭环测试技术
The ACDS close-looped tests under the satellite level



新一代北斗导航卫星首发星与上面级联合转场
The transportation of the satellite with the upper-stage



新一代北斗导航卫星首发星研制团队
China's first New-Generation Beidou Navigation satellite team

新一代北斗导航卫星首发星研究集体

推荐单位：中国科学院微小卫星创新研究院

研究集体主要科技贡献：

该研究集体坚持“创新驱动发展”，勇于创新取得了多项创新性突破，主要包括中科院导航卫星专用平台（框架面板结构、单独星敏感器定姿、高性能密度综合电子架构等）、“功能链”设计理念、基于相控阵的Ka星间链路技术、无缝切换时频基准、氮化镓高效功放、高性能抗辐照CPU和FPGA（龙芯LS1E、LS1F）等，既实现了中国科学院在导航卫星领域的“破冰”之作，也为中国北斗卫星导航系统从区域运行向全球拓展实施做出了巨大贡献。

研究集体突出贡献者



林宝军 Lin Baojun

林宝军 中国科学院微小卫星创新研究院

主要科技贡献：研究集体总设计师，全面负责新一代北斗导航卫星从关键技术攻关、方案论证到工程实施各阶段研制工作，带领研究集体攻克了多项核心技术难题，为成功发射作出了突出贡献。



李国通 Li Guotong

李国通 中国科学院微小卫星创新研究院

主要科技贡献：研究集体常务副总指挥，负责组织关键技术攻关、方案论证、工程实施、器部件国产化及应用验证等工作，策划制定了“二代导航卫星研制规范”，建立了技术、计划、质量、元器件可靠性等四条管理线，为新一代北斗导航卫星首发星的圆满成功作出了重要贡献。



沈学民 Shen Xuemin

沈学民 中科院微小卫星创新研究院

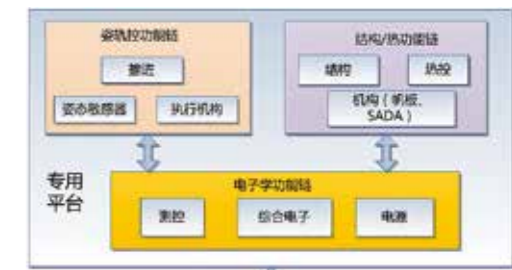
主要科技贡献：研究集体副总设计师，负责卫星总体方案的设计，全面负责卫星总装、集成测试、大型试验等技术工作，分管卫星结构热功能链、有效载荷功能链工作，为新一代北斗导航卫星首发星的圆满成功作出了重要贡献。

研究集体主要完成者

林宝军 李国通 沈学民 龚文斌 熊淑杰 沈苑 蒋桂忠
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任前义 陈勇 孔陈杰 白涛 林士峰 刘静



框架面板式构型设计技术
The frame-panel light-weight structure



“功能链”设计理念
The designing concept of the "functional chain"