

Engineering Experience and Development Proposals for GNC Technology of Typical Floating Air Vehicles

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Abstract

Compared with other aircrafts, Floating Air Vehicles, including high-altitude balloons and airships, have played an irreplaceable role in the early 20th century and will still play important role in the future. Considering GNC is the core technology for the effective design and development of typical Floating Air Vehicles, this talk provides an overview of GNC approach from engineering perspective. A step-by-step development roadmap based on the classification of Floating Air Vehicles is given as a background to understanding the need to integrate GNC technology in Floating Air Vehicles development. According to the essential concept of GNC, a preliminary study of experience and lessons learned from the development of typical Floating Air Vehicles is presented. This is followed by the discussion of key points for the future development of Floating Air Vehicles and conclusion in the final section.



Luhua Jiang was born in 1956. He received his PhD from Institute of High Energy Physics Chinese Academy of Sciences in 1991. He is currently the chief engineer and General Director of Lighter-than-Air (LTA) research center at Chinese Academy of Opto-Electronics. Professor Luhua Jiang has been active in the research and development of tethered balloon since 1990. Prof. Jiang has worked in the areas of light-than-air vehicles technologies and their applications for a long time. He has been responsible for several projects, include high-altitude scientific balloons, tethered balloons, stratospheric airship.

Professor Luhua Jiang is editor-board of Space Science Journal and serves as Director of the committee for China Space Science society. He is also the honorary of recipient of State Council's allowance. Research and scholarly activities largely lie in the areas of the high-altitude Lighter-than-Air vehicle design and its applications for scientific and civil purposes.

Professor Luhua Jiang's achievements have been acknowledged by winning the Second Prize, awarded by the Beijing Science Progress Council for the design of large type of stratospheric balloon with more than 400,000 cubic meters capacity. Professor Luhua Jiang has successfully organized the launch of balloon-telescope observation mission. He also has been a chief engineer for the payload research in the Hard X-Ray Modulated Telescope (HXMT) satellite project.