Intelligent autonomous guidance and control for spacecraft

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Intelligent autonomous control of spacecraft refers to the introduction of artificial intelligence and intelligent control technology into the spacecraft control system, so that when the spacecraft is in an uncertain environment and the internal structure and parameters change, it can realize the autonomous operation of the spacecraft without the help of human beings and the support of the ground station, and completely rely on the ability of the hardware and software equipment on the spacecraft itself. Autonomous operation is the purpose, and intelligent control and other control methods are the means to achieve autonomous operation of spacecraft.

Generally speaking, the research of spacecraft intelligent autonomous control includes:

1) Intelligent autonomous control of single spacecraft
2) Coordination, planning, formation flight, rendezvous and docking of multiple spacecraft
3) On orbit operation, assembly, disassembly, management and production test of spacecraft
4) Intelligent autonomous control of space robot and planet surface inspector
5) Autonomous Fault Diagnosis and reconstruction of spacecraft
6) Intelligent management of spacecraft information

At present, the research of intelligent autonomous control in the above six aspects has made some progress and application. This special session intends to invite relevant papers, carry out in-depth discussion on relevant direction, and further promote the development of this direction.