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Author: Mrs. Bin Rong
Engineer, China, nannan20030718@163.com

APPLICATION OF AN ADAPTIVE LOCKING TECHNOLOGY FOR MICRO FLUID PIPELINE
SEALING IN MICROGRAVITY ENVIRONMENT**Abstract**

For medicine experiments in space, an astronaut physiological and biochemical indexes are mainly obtained by medical detecting device, which can provide experimental evidence for the astronaut's health. In this paper, combining with the characteristics of space microgravity environment, the special application requirements of the micro fluid pipeline sealing in the medical detecting device is analyzed, and the flow cell combination design based on the adaptive locking technology is proposed. Through the theoretical analysis, the finite element software ANSYS modal analysis, the mechanics test and the temperature test, the locking mechanism design is revised, the leakage problem of micro fluid pipeline sealing in the experiments is solved, and the nanoscale seal lock surface is realized. The medical detecting device achieves strong specificity and good stability result in the orbit space experiment. The adaptive locking technology can be widely used in biochemical tests and other micro fluid sealing area, and has the popularization and application value.