Researchers prepare radiation resistance of Er-doped silica glass and optical fiber
22 June 2021, by Zhang Nannan

The researchers prepared Ge ion co-doped silica glasses and fibers, and the radiation induced silica color centers were identified by induced absorption and electron paramagnetic resonance spectroscopy. Then they proposed the formation and conversion process of aluminum (Al) and Ge-related color centers and the radiation-resistance mechanism of Ge co-doping.

The results of online X-ray radiation experiments show that Ge co-doping can significantly improve the gain performance of Er-doped fiber amplifier (EDFA) after radiation.

This work provides a necessary reference for the optimization and design of radiation hardening Er-doped silica fiber core glass composition for future space EDFA applications.


Provided by Chinese Academy of Sciences