High velocity regimes of plasma propagation supported by laser in condensed and hollow silica-based optical fibers

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This work has been done by Joint Institute for High Temperatures (JIHT RAS) and Fiber Optics Research Center (FORC RAS). We had investigated ultrafast self-contained regimes of plasma propagation supported by laser in condensed and hollow silica-based optical fibers. Damage of the light conductivity in media of optical fiber transporting intense laser energy leads to the absorption of this energy and the appearance of a bright laser plasma. The created plasma begins to move towards the radiation source, irreversibly damaging the light guide. Experimental results were obtained for condensed [1–5] and hollow optical fibers [6, 7]. Key physical processes in both types of silica optical fibers are discussed.

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