Contribution ID: **44** Type: **not specified**

Physical processes in condensed and hollow optical fibers under laser action

Wednesday, 29 January 2020 17:35 (5 minutes)

Silica is perspective material for component of powerful laser setups and new optical fibers. Damage of the light conductivity in the silica optical fiber transporting intense laser radiation leads to the absorption of energy and the appearance of a bright laser plasma with solid density. The plasma begins to move towards the radiation source, irreversibly damaging the light guide. Depending on driving laser energy, different damage propagation velocities are possible [1-4]. New scientific challenge is creation extremal states inside hollow optical fibers under laser action [5].

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Session Classification: Poster Session