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## Volume laser destruction in the silica

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Data on experimental study of ultrafast volume destruction in the optical fibers are analyzed. Under laser action the destruction zone of quartz optical fibers (the plasma zone) occurs and spreads towards the radiation [1]. When the plasma zone moves the cover quartz optical fiber breaks down. The attention of this work was directed to the investigation of destruction at laser supported detonation. In the experiments, we have used experimental quartz optical fibers in the CNS RAS and industrial fibers connection. The saved fibers after passing of “optical detonation” have been observed by scanning electron microscope. It was found that the destruction of the core and shell of quartz fibers has a multilevel nature from micro to nanosize. A numerical analysis of the possible hydrodynamic mode of the propagation of the plasma zone in the framework of the approximation of a continuous medium is carried out [2, 3].

### References

- [1] V.P. Efremov, V.E. Fortov, and A.A. Frolov, Journal of Physics: XXX International Conference on Interaction of Intense Energy Fluxes with Matter 653 (2015) 012013
- [2] V.P. Efremov, M.F. Ivanov, A.D. Kiverin, and I.S. Yakovenko, J. Phys.: Conf. Ser. 774 (2016) 012119
- [3] V.P. Efremov, A.A. Frolov, E.M. Dianov, I.A. Bufetov, and V.E. Fortov, ARCH METALL MATER 59 (2014) 4

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