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Investigation of the Dynamics of Multiple Filamentation in Transparent Solid Media

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The ability to control pulse duration, obtaining pulses of ultrashort duration and generation of broadband radiation are the topical problems of modern optics. The use of dispersion properties of the media to control spatio-temporal intensity distribution of the pulse and its spectral parameters during nonlinear interaction with the environment is of great interest to fundamental and applied aspects of modern nonlinear optics [1].

Experiments of registration plasma channels were carried out in the transparent samples with pulse energy 0,15 mJ, duration of 280 fs, repetition frequency 10 kHz at the main wavelength femtosecond ytterbium laser (1030 nm). The laser beam was focused by quartz lens with a focal length of 150 mm. Input face of the sample was mounted at the beginning of beam waist [2].

Evaluation of the geometric dimensions of plasma channel has been carried on the basis of optical images, obtained by microscope with previously measured magnification and with calculated dimension of scale. It was noticed that the coordinate of the end point of the filament remains stationary.

To register distribution of intensity of radiation passing through the sample was used the beam intensity profiler. The dynamics of the filamentation was registered [3]. Based on the distribution profile of radiation intensity and optical microscopy registration of plasma channels, the critical powers of the formation of two or more filaments were estimated.

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References

[1] S V Chekalin and V P Kandidov, Phys.-Usp. **56**, 123 (2013)

[2] K S Khorkov, D A Kochuev, D V Abramov, A D Kornilova, S M Arakelyan, R V Chkalov and V.G. Prokoshev, Dynamics of Complex Systems – XXI century, vol. 9, 2015 p. 23

[3] K S Khorkov, D A Kochuev, D V Abramov, A S Chernikov, S M Arakelian and V G Prokoshev, in: Proc. of the International Conference Laser Optics, June 27 – July 1, 2016, St. Petersburg, Russia, (LO 2016), p. R8-52