**Investigation of temperature dependent optical spectral properties of polysiloxane polymers used in high-power fiber optics**

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**Biography:**

Renata Ismagilova is a first year postgraduate student of the Institute of Radio-engineering and Electronics of RAS. She has graduated from the Moscow Institute of Physics and Technology in 2018 with a master's degree in applied physics and mathematics. Her primary research interests are in the field of fiber laser optics, magneto-optics and optical materials. She has authored and co-authored more than 10 scientific papers.

**Abstract:**

Thermal degradation of polysiloxane polymers used in fiber optics under conditions of high-power laser generation is one of the main limiting factors of fiber lasers power scaling. In this work, spectral properties, such as absorption coefficient and optical scattering, of several polymers used as active fiber coating and industrial fiber unit fillers are investigated. Temperature dependences of optical absorption coefficient of polymers at the wavelengths of laser and pumping radiation were measured by means of laser calorimetry technique. Heating of fiber laser unit under lasing conditions was experimentally measured. The fraction of optical pumping power, transforming into heat due to absorption in polymer, was estimated.

Keywords: fiber lasers, polymers, absorption coefficient, temperature measurement.