On development and implementation of BMSTU Femtolab cluster's femtosecond laser module

© E.Yu. Loktionov, A.V. Pavlov, N.A. Pasechnikov, Yu.S. Protasov, Yu.Yu. Protasov, V.D. Telekh

Bauman Moscow State Technical University, Moscow, 105005, Russia

We report on development of BMSTU Femtolab cluster femtosecond laser module in the Educational and Research Center «Photon Energetics» at Bauman Moscow State Technical University. Module assignment is an experimental research of multifactor optical, thermophysical, gas dynamic and transport processes and properties of photon energy facilities active media and construction materials at condensed, gas and plasma media intensive ultrashort laser irradiation in a broad range of spectral, energy and dynamic parameters in different gases and vacuum environment.

Keywords: femtosecond laser, laser-induced processes, laser-matter interaction, ultrashort laser pulses, laser plasma, femtosecond pulses, diagnostic methods.

Loktionov E.Yu., Ph.D., lab head of the Educational and Research Center for Photon Energetics at Bauman Moscow State Technical University. Author of more than 50 publications in the field of experimental research of laser-matter interaction radiative gas dynamic and optothermophysical processes using modern diagnostic methods. e-mail: stcpe@bmstu.ru

Pavlov A.V., Leading engineer at the Educational and Research Center for Photon Energetics. Coauthor of several papers on theoretical investigations of complex chemical composition of low-temperature plasma thermodynamic, optical and transport properties. e-mail: stcpe@bmstu.ru

Pasechnikov N.A. graduated from Bauman Moscow State Technical University in 2013. e-mail: stcpe@bmstu.ru

Protasov Yu.S., Dr. Sci. (Phys.&Math.), Professor, Deputy head of the Joint Educational and Research Center for Photon Energetics and Photon Technology at Bauman Moscow State Technical University. Author of more than 400 publications, more than 10 books, and 300 inventions in the field of low-temperature plasma physics and technology, radiative gas-plasma dynamics and physical electronics. e-mail: stcpe@bmstu.ru

Protasov Yu.Yu., Dr. Sci. (Eng.), Professor of Bauman Moscow State Technical University. Author of more than 100 publications in the field of fundamental theoretical and experimental research of laser-matter interaction radiative plasma dynamic and optothermophysical processes. e-mail: stcpe@bmstu.ru

Telekh V.D., Ph.D., Director of the Educational and Research Center for Photon Ener-getics at Bauman Moscow State Technical University. Author of more than 50 publica-tions in the field of fundamental theoretical and experimental investigation of low-temperature plasma thermodynamic, optical and transport properties. e-mail: stcpe@bmstu.ru