modernized layers of Metal nanoparticles including those with polymer admixtures for direct and indirect ICF scheme and interaction experiments with long and short laser pulses

Akimovа I.V., Akunets A.A., Borisenko N.G., Gromov A.I., Orekhov A.S., Tolokonnikov S.M., 1Pimenov V.G., 2Baiwa Ch.K., 2Chaurasia Sh., 2Munda D.S., 2Rao U., and 2Rastogi V.

Lebedev Physical Institute, Russian Academy of Sciences, Moscow, Russia,
 agrom@sci.lebedev.ru
1Zelinski Organic Chemistry Institute, Russian Academy of Sciences, Moscow, Moscow,
 pimenovv@mail.ioc.ac.ru
2Bhabha Atomic Research Center, Trombay, Mumbai, India, pgshivanand@gmail.com

The up-to-date methods of fabrication and certification of the layers of metal ultra-dispersed powder have been developed, and among them the ones with polymer admixture into the low‑density layer of laser targets. The problems of precision certification and accuracy of overall monitoring of such layers are discussed. Similar mentioned layers are a useful addition into the construction of diagnostic and special studied targets and for conversion of laser light into the x-ray for indirect targets for high power laser installations [1, 2].

The laser experiments with the prepared targets have been carried out to improve the properties of conversion and the hydrodynamic studies under the action of long and shortwave laser pulses [3]. The obtained results are of importance from the view of points of new experiments. We succeed in overcoming problems with micro-volume and small amounts the matter used. The discussed techniques are very interesting from the viewpoint of future target design.

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References

1. A.A. Akunets., L.A. Borisenko., N.G. Borisenko., A.I. Gromov., Yu.A.Merkuliev., A.A. Orekhov., V.G. Pimenov., E.E. Sheveleva., V.G. Vasiliev. Modern treed’s in low-density materials for fusion. // IFSA 2013, Nara, Japan, 8-13 September 2013, Book of Abstr. p. 315.
2. L.A. Borisenko., I.V. Akimova., A.A. Akunets., A.I. Gromov., A.S. Orekhov. Metal produced as nano-snow layers for converters of laser light for indirect targets as intensive EUV sources. // Jounal of Radioanalitical and Nuclear Chemistry. 2014.Vol 299. Num 2. pp. 955–960.
3. L.A. Borisenko., N.G. Borisenko., A.M. Chekmarev, Yu.A. Mikhailov., A.S. Orekhov., A.A. Shapkin and G.V. Sklizkov. Distribution function evolution of electrons stochastically heated by picosecond laser pulse. // ECLIM 2016. September 19-23. Moscow. Russia. Book of Abstr. p. 18.