
On verification of micro-nanonewton range recoil momentum evaluation techniques at solid targets laser ablation

© V.I. Zakharov, E.Yu. Loktionov, Yu.S. Protasov, Yu.Yu. Protasov

Bauman Moscow State Technical University, Moscow, 105005, Russia

Opto-mechanical characteristics, including small and super small recoil momenta ($I_M \sim 10^{-12} \dots 10^{-3} \text{ N} \cdot \text{s}$), experimental registration techniques of comparative analysis at powerful ($I_0 \sim 10^5 \dots 10^{15} \text{ W/cm}^2$) laser radiation interaction with solid targets are covered. These techniques application areas, sensitivity, spatial and temporal resolution, instrumental implementation complexity, and obtained results correspondence are discussed.

Keywords: laser ablation, specific mechanical recoil momentum, nano- and piconewton range, experimental procedures.

Zakharov V.I. graduated from Bauman Moscow State Technical University in 2013.
e-mail: stcpe@bmstu.ru

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 plasma dynamic and optothermophysical processes using modern diagnostic methods.
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
