Absorption of Ultrashort Electromagnetic Pulses on Gold Nanospheres in Various Dielectric Media

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Abstract : The study is devoted to theoretical analysis of ultrashort electromagnetic pulses (USP) absorption on gold nanospheres. Dependencies of USP energy absorption on nanospheres placed in various matrix are compared. The results of calculation of absorbed energy on gold nanospheres as a function of ultrashort electromagnetic pulse carrier frequency and number of pulse cycles of carrier frequency show strong non-linear dependence of absorbed energy on number of cycles of carrier frequency, but for relatively large number of cycles on USP carrier frequency it goes to linear dependence.

 ${\bf Keywords:} ultrashort\ electromagnetic\ pulses,\ absorption,\ nanospheres,\ theoretical\ research$

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