

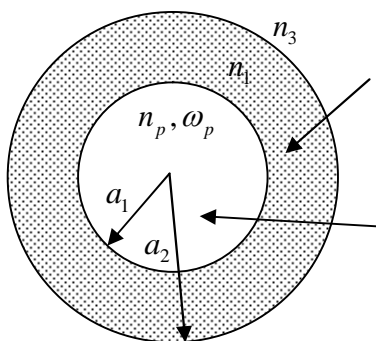
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Fundamental theoretical understanding of the details of the transient dynamics of the plasmon excitation in structure, consisting of metal nanowire coupled with the optically dynamic medium is presented. The excited plasmon dynamics in the metal nanowire by means of a rigorous mathematical approach that based on the analytical solution in the Laplace transform domain and its accurate inversion into time domain by virtue of residues evaluation at singular points that correspond to the excited plasmons of the structure are described. This problem is a 2D model of nanolaser and has applications in the most growing areas of nanophotonics and nanotechnologies which demand devices that can generate coherent plasmonic fields in subwavelength scale.

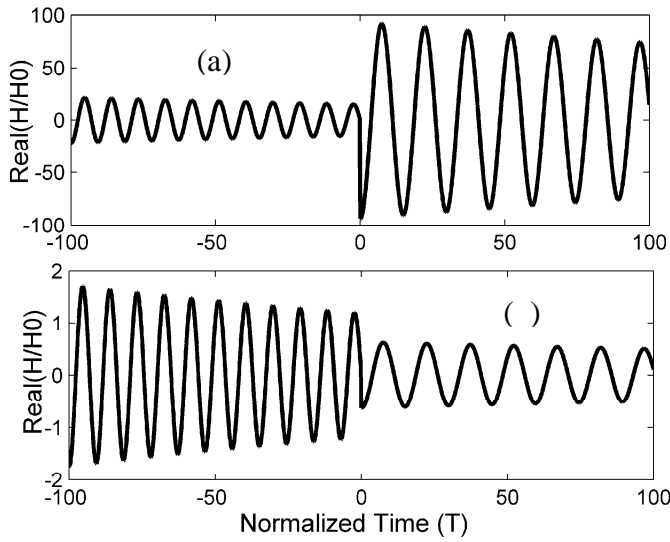
[1-2].

[3].



. 1.

( . . 1).



$a_1 = 25$

$a_2 = 35$

(a)  $n_1 = 2.8, n_2 = 1.5$ ; ( )  $n_1 = 1.5, n_2 = 2.5$ .

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