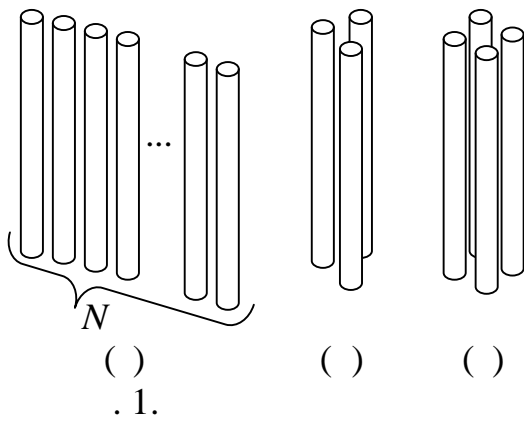


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The following structures have been considered: a finite linear chain; a cluster of triangular or square configuration. All possible plasmon modes of the wire configurations have been described. Field distributions in the near field, their frequency and quality factor have been studied. Optimized configurations with enhanced sensitivity and directionally were founded.

[1].



.1.  
 : ( )  
 ( )  
 ( )

$\varepsilon_p = 1 - (\omega_p^2 / (\omega(\omega - i\gamma)))$ ,  $\omega_p$  -  $a$ ,  $\gamma$   
 $d$ , -  $n_1$ ,  
 [2].

$$\left( \right) \quad [3],$$

**1.** Zhang J. and Zhang L. Nanostructures for surface plasmons // *Advances in Optics and Photonics*. 2012. No. 4. Pp. 157–321. **2.** Stognii N.P. and Sakhnenko N.K. Plasmon resonances and their quality factors in a finite linear chain of coupled metal wires // *IEEE J. Sel. Topics Quantum Electron*. 2013. Vol. 19. No. 3. Pp. 4602207. **3.** Johnson P.B. and Christy R.W. Optical constants of noble metals // *Physical Review B*. 1972. Vol. 6, No. 12. Pp. 4370-4379.