ON THE THEORY OF RESONANT TRANSITIVE RADIATION OF DECIMETRIC RADIATION OF FLARES

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In this work a mechanism of resonant transitive radiation (RTR) with reference to its possible application for interpretation of decimetric radio emission of solar flares is analyzed. Such radiation depends on a number of parameters of the radiating media. In particular, on the parameter of spectrum of small-scale inhomogeneity of electronic density, ν. Platonov & Fleishman (2002) derived the formulas for factors RTR in dependence on the frequency of radiation for $\nu = 2$. On the whole these formulas describe the behavior of RTR precisely, however in narrow frequency intervals they can give either negative or infinite values. In this work, using the approaches similar to those developed by Platonov & Fleishman (2002), factors of RTR for an arbitrary parameter have been obtained. These factors, in particular, did not give negative and infinite values. On their basis the RTR factors integrated on frequency have been obtained. These factors were used for the analysis of decimetric radiation of the flare on December 24, 1991. It has been shown, that the RTR of this flare could originate in plasma with small-scale inhomogeneities with $\frac{\langle \Delta N^2 \rangle}{N^2} = 2.5 \cdot 10^{-5}$.

References

Platonov K.Yu., Fleishman G.D.: *UFN*, 2002, **172**, 3, 241.