

## **Parallel algorithm of solving the electromagnetic wave diffraction problem on the spherical screen**

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### **Abstract**

The electromagnetic wave diffraction problem on a thin conducting spherical screen is reduced to pair summatorial equation relative to unknown coefficients of expansion into a series of spherical waves. This equation can be transformed to a regular infinite set of linear algebraic equations by integral-summatorial identities method. For all stages of numerical algorithm of solving the problem the parallel calculating processes are possible. At first, if field traces of outside source at the sphere are decomposed onto magnetic and electric parts, then magnetic and electric parts of the unknown field can be found independently. Secondly, if coefficients of field conjugation conditions at the sphere do not depend on longitude coordinate, then calculations also can be fulfilled independently for every number of the series coefficients. Thirdly, if by reduction of infinite set the finite set of linear equations of large dimension is obtained, then it can be solved by one of parallel algorithms. But the most effect can be obtained just at the stage of calculating the auxiliary integrals over screen.

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