

## **ANALYTICAL CONTINUATION OF POTENTIAL FIELD, WHICH IS SET ON THE FINITE INTERVAL.**

Y.N. Yakymchuk M.A. Yakymchuk

The two dimensional space task of analytical continuation of field is solved in the next formulation. Inside of circle with finite radius from lower half-plane the sources of potential field are concentrated. The distance between center of circle and border of half-plane is longer or equal considering to the radius of this circle; on the final interval of border in uneven discrete net the values of field were measured with concrete accuracy. We have to find the value of field out of circle with accuracy that coincide with mistakes of measurements. The solution of this problem is set to the infinite system of linear equations to define the coefficients of expansion of potential considering to the system of main linear independent harmonic polynomials. We investigated the properties of system of linear equations, learned the structure of matrix of this system, find out the regularity of this matrix, and the conditions of existing of only solution is described, so and we have got the strong unsuitability of numerical solving. Also have developed the method stable calculating of reduction system.