Contribution ID: **390** Type: **Poster**

THE MICROSCOPIC OPTICAL NUCLEUS-NUCLEUS POTENTIAL MODEL: PARALLEL IMPLEMENTATION BASED ON MPI AND OPENMP TECHNOLOGIES

The double folding model is the well-known method for constructing the microscopic optical potential of nucleus-nucleus scattering. The calculation of this characteristic consists of two stages. The direct potential is obtained by means of an integral expression. The exchange potential calculation is based on numerical solution of the nonlinear integral equation which requires significant computer costs in mass calculations. The developed parallel computing scheme is implemented on the basis of two technologies: MPI (Message Passing Interface) and OpenMP (Open Multi-Processing). The effectiveness of the developed implementations is confirmed by methodical calculations on the multiprocessor cluster HybriLIT (LIT JINR, Dubna).

Primary authors: Dr ZEMLYANAYA, Elena (leading researcher); Dr LUKYANOV, Konstantin (LIT JINR); Mr BASHASHIN, Maxim (JINR)

Presenter: Mr BASHASHIN, Maxim (JINR)

Track Classification: Mathematical Modeling and Computational Physics