# High performance computing in astrophysics.
# The organic formation in protostellar disc

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**Key word:** high performance computing, computational astrophysics, protostellar disc, chemodynamics

*Abstract*: In this talk, a novel computation technique for numerical simulations of astrophysics structures at the Peta- and Exascale supercomputers is described. The co-design of parallel numerical algorithms for astrophysical simulations is described in detail. The hydrodynamical numerical model for the astrophysical simulation, numerical methods for solving the hyperbolic equations and brief description of parallel implementation of the gooPhi code are described. The results of numerical experiments of simulations of organic formation in protostellar disk are presented.