Development of hybrid computer plasma models for different pressure regimes[1] JAKUB HROMADKA, TOMAS IBEHEJ, RUDOLF HRACH, Department of Surface and Plasma Science, Faculty of Mathematics and Physics, Charles University in Prague — With increased performance of contemporary computers during last decades numerical simulations became a very powerful tool applicable also in plasma physics research. Plasma is generally an ensemble of mutually interacting particles that is out of the thermodynamic equilibrium and for this reason fluid computer plasma models give results with only limited accuracy. On the other hand, much more precise particle models are often limited only on 2D problems because of their huge demands on the computer resources. Our contribution is devoted to hybrid modelling techniques that combine advantages of both modelling techniques mentioned above, particularly to their so-called iterative version. The study is focused on mutual relations between fluid and particle models that are demonstrated on the calculations of sheath structures of low temperature argon plasma near a cylindrical Langmuir probe for medium and higher pressures. Results of a simple iterative hybrid plasma computer model are also given.

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