Abstract Submitted
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TRANSP: status and plans to bring the golden standard into the silicon age[1] FRANCESCA POLI, JOSHUA BRESLAU, LASZLO GLANT, MARINA GORELENKOVA, JAI SACHDEV, GARRETT WRIGHT, XINGQIU YUAN, Princeton Plasma Physics Laboratory — TRANSP is a time-dependent 1.5D equilibrium and transport solver, used for modeling of tokamak plasma discharges and experimental planning. TRANSP incorporates state of the art heating/current drive sources and transport models, implemented in a solver (PT-SOLVER) that is especially suited to treat stiff turbulence transport. With increasing number of users worldwide and with the upcoming ITER era, TRANSP is facing a new challenging: taking down the simulation walltime without compromising physics fidelity. Recent development plans include self-consistent treatment of fast ion transport, synergy between RF sources and MHD calculations. While upgrading physics capabilities is still a priority, the focus of the development team is shifting towards the modernization of the code and the re-factoring of its modules for new computer architectures. We describe the plans forward for making TRANSP attractive to a new generation of users, including capabilities for running the code on one own laptop. We describe the plans for developing a whole device model that provides at the same time high fidelity physics models and computational efficiency, as required for long pulse operation and for the upcoming ITER operation.

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