TRANSP: status and plans to bring the golden standard into the silicon age[1] FRANCESCA POLI, JOSHUA BRESLAU, LASZLO GLANT, MARINA GORELENKOVA, JAI SACHDEV, 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: reducing the computational burden without compromising the physics fidelity. While upgrading physics capabilities is still a priority, the focus is shifting towards the modernization of the code and the re-factoring of its modules for new computer architectures and to enable collaborations (modularization). We describe the plans forward for physics upgrades and for modernizing and modularizing TRANSP, including running the code on a laptop and on the cloud, and with the need for a whole device model code that provides at the same time high fidelity physics models and computational efficiency.

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