

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**SMILEI, a user oriented plasma simulation ecosystem** ARNAUD BECK, CNRS - Laboratoire Leprince-Ringuet, JULIEN DEROUILLAT, MATHIEU LOBET, CEA - Maison de la Simulation, FREDERIC PEREZ, TOMASO VINCI, CNRS - LULI, FRANCESCO MASSIMO, CEA - Maison de la Simulation, MICKAEL GRECH, CNRS - LULI — SMILEI is an open source, general purpose, electromagnetic Particle-In-Cell code. As such, it federates inputs from the astrophysics, laboratory plasma physics, and computer science communities which contributors constitute the backbone of the SMILEI growing ecosystem. An efficient and massively parallel core, required for all scientific applications, is maintained by computer scientists. The various geometries and physics models included and built around this core by physicists are driven by the needs of the scientific communities and developed accordingly. Priorities are given to features requested by the users community which is the bulk of the ecosystem. Its feedback is essential to guide the development of a solid software which meets their needs in terms of capability and usability. A significant effort is put into a good user-interface, post-processing, documentation and education of this community with as much interaction as possible. The ecosystem is completed by the national computing centers. They help setup optimized environments and make sure to acquire computing systems well adapted to the code. This is achieved by benchmarking prototypes against various SMILEI simulations before the acquisition of new hardware.

Arnaud Beck  
CNRS - Laboratoire Leprince-Ringuet

Date submitted: 29 Jun 2020

Electronic form version 1.4