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Particle Simulations for Plasma-Plasma Intersecting Experiments SEIGO MISAKI, TOSHINORI YABUUCHI, TAKUYA KONO, TATSUYA OISHI, KAZUO A. TANAKA, Osaka University, ATSUSHI SUNAHARA, Institute for Laser Technology — Walls in a laser fusion reactor can be ablated by thermal load and become plasma. We have conducted experiments on the intersections of two plasma plumes created by laser ablations to study the behavior of the ablation plumes in the reactor. An ICCD camera was employed to measure time-resolved spatial distributions of emissions from the plumes using various types of target materials, such as Tungsten and Carbon. The results show a clear material dependence of the plume interactions. To understand the underlying physics of the plume intersections, we have developed a particle simulation code using Direct Simulation Monte Carlo (DSMC) techniques and coulomb collision model [1]. The simulation results are consistent with the experimental observation with the ICCD camera. The detailed comparison of the simulation and experimental results will be presented.

[1] T. TAKIZUKA and H. ABE, J. Comp. Phys., 25, 205(1977)

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