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Alpha Particle Return Currents Change the Diffusion of Mix Jets JAMES SADLER, HUI LI, BRIAN HAINES, Los Alamos National Laboratory — Carbon and other impurities can enter inertial confinement fusion fuel in jets. The higher Z material is more radiative, quenching the fusion burn. There are some experimental indications that this mix is spreading rapidly across the fuel hot-spot at close to bang time. The mix jet contains very little fuel and has a low temperature, meaning fusion barely occurs within it. This results in a current of fast fusion alpha particles from the hotter region into the jet. This will cause a resistive return current that changes the plasma diffusion rate of these contaminants across the fuel. We explore this effect with Vlasov-Fokker-Planck simulations.

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