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IFE/P6-05: Computational Study of the Strong Magnetic Field Generation in Non-Spherical Cone-Guided Implosion

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The magnetic field in non-spherical cone-guided implosion is simulated using temporal evolution equations of the magnetic field coupled with simulated result of 2-D radiation hydrodynamic simulation for Fast Ignition as the first attempt. We have found that the magnetic field is generated by grad(Te)xgrad(Ne)term, and it is compressed by the implosion. In the result, it reaches 5 MG at maximum compression, which was not considered before. Also, high Hall parameter region is appeared between cone tip and core plasma. This magnetic field is strong enough to affect the implosion dynamic and hot electron transport, therefore it should be paid attention in these simulations for Fast Ignition.

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