

Abstract Submitted
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Multiple-applications of Accelerated Compact Toroid Injection for MFE DAVID HWANG, ROBERT HORTON, RUSSELL EVANS, FEI LIU, BEN ZHU, SEAN HONG, UC Davis, DEAN BUCHENAUER, SNL — The CTIX experiment has explored the potential applications of launching a fast moving magnetized compact toroid for Magnetic Fusion experiments. These applications include central fueling of a MFE device such as tokamaks, stellarators, etc. At present, the UC Davis CTIX accelerator has achieved densities at mid to upper 10^{15} per cc, at speeds reaching over 200 km/sec. In order to meet the parameters of even larger fusion devices, the technology of the accelerator needs to incorporate the latest plasma wall interaction findings. As a result of the next step in CT development, UC Davis will be collaborating with the Fusion Technology group at Sandia National Laboratory in Livermore California. We will be designing new plasmas facing electrodes that can reduce electrode impurities and increase electrode lifetime. In addition to producing high density CTs, we will include the updated conical compression results from our previous installed drift section compressor. In addition of the MFE applications, the ability to enhance the CT density, fields as well as speed can be useful to other fusion areas such as MIF, etc.

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