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**A new coronal mass ejection experiment by use of PF and CS coils in TS-4 ST/CT device** KAZUTAKE KADOWAKI, AKINORI SATO, MICHIAKI INOMOTO, YASUSHI ONO, University of Tokyo — A novel simulation experiment of coronal mass ejection (CME) has been performed using two PF coils, two fluxcores and a center solenoid coil in TS-4 merging device. Its operation is described as follows. A fluxcore is used to form a spheromak that has a certain amount of linked flux with the center solenoid coil. Then, we turns on the out PF coil current parallel to that of spheromak to let the spheromak expand in radial direction like a rising plasmoid/filament. This motion causes the linked flux of spheromak to reconnect, transforming the linked flux into the private flux. The reconnection is observed to accelerate the plasmoid to 10$\sim$20 km/s about 20% of the Alfven velocity. The size of current sheet (L$\sim$10cm, $\delta\sim$4cm) and time scale (30$\mu$s) of reconnection are almost equal to those of the conventional tokamak merging experiment. This operation similar to the CME model is useful to study the CME mechanism under varied linked flux, acceleration and boundary conditions. It is also noted that this experiment with free plasmoid ejection has no density/flux pileup unlike the conventional non-steady reconnection/merging.

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