

**An Alternative Scheme for Heavy Ion Driven Inertial Fusion, H. SCHÖNAUER, CERN** - Present scenarios for Heavy Ion Driven Inertial Fusion (HIDIF) propose induction linacs or RF linacs combined with storage rings. In the latter variant, the final bunch compression to about 5 ns duration, necessary for ignition facilities, does not appear to be possible in the rings. The difficulty resides mainly in the large velocity spread (2%) of the compressed bunch that limits the time available for bunch compression to less than one revolution period. For this reason the final compression is done in a single-pass buncher induction linac in the beam transport line towards the target. In order to preserve a more economic in-ring, multi-pass buncher RF system, it is proposed to split these bunches into four families of sub-bunches of height  $dp/p = 0.25\%$  which are separated by an equal gap in momentum. The four bunch families are injected from a linac into four injector rings. After completing injection into RF holding buckets, the bunches are transferred to one larger holding ring where they are confined and finally rotated by four separate RF systems. The merging of the beams from the different injector rings takes advantage of the momentum gap between the families and is accomplished by double septa in a high-dispersion insertion. The target is located in the centre of the holding ring and the resulting scenario is far more compact and economic than the one presently discussed [1].

- [1] C. Prior, Status of the HIDIF Project, this Conference.