

Current Emphases of ICC

- **Advance the plasma science underpinning a range of confinement concepts**
 - **High β**
 - **High degree of self organization**
 - **High density and high B field**
 - **Control of plasma-wall interaction**
 - **Profile control by high-velocity plasma injection**
 - **Non-inductive current drive**

ICC – CE Program supports many concepts

“Basic Toroidal”			“Advanced Toroidal and Other”		
Tokamak innovations & physics	Spherical torus	Stellarator	Self-organized	Pulsed high-dens.	Other
High-Aspect ratio Tok. (ET) HBT-EP Resistive-wall stab. Tokamak trans. phys. Divertor innovation	Pegasus HIT-II LTX	HSX CTH QPS	Spheromak (SSPX, HIT-SI, CalTech) FRC (TCS-rotomak, Rotating field, SSX, Theory & Misc.)	Mag. Target Fusion (FRX-L, MTF sup., theory, stand-off driver) Inverse Z-pinch Accelerated FRC Flow Pinch (ZAP)	LDX CTIX Mary. Centr. Exp. Magneto-Bern. Exp. Inert. Elect. Conf.
\$3M	\$2.4M	\$3.4M	\$6 M	\$3.1M	\$2.9M



Status

- **All the projects used their first funding cycle mainly to build and commission the experimental apparatus**
- **The second funding cycle is the principal physics phase – Most have entered this phase**
- **Seven projects will be reviewed for entering this second phase this year**
- **For an orderly turn-over of the program, a major review of the entire ICC program would appear to be appropriate around the 2007-2008 time frame**
 - Opportunities for turn-over before that time frame are very limited

Decrement Case in FY06

(Budget decrement of 5% or more)

- There is difficulty in taking a 5% - 10% cut of every project across the board at this point
 - It will just cripple most of the projects
- As a strawman for dealing with this case, it might be necessary to significantly reduce the funding of one or two major projects (those with an annual funding of ~\$1M or more, together with their collaborations)
- To do this would require subjecting these projects to a major review
 - Panel review
 - Careful thoughts would be needed in developing the criteria for the review (This would be challenging)

Potential ICC Connections to ITER

- Non-inductive current drive
- Plasma injection for profile control and refuelling
- Plasma-wall interaction
- The physics of self-organization in plasmas
- Effects of velocity shear and rotation
- Graduate students training
- A plus-up of \$3M to strengthen the program in these aspects will be useful