

**RWM ACTUATOR COILS:  
WINDOW-PANE OR PUSH-PULL ?**

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## **OPTIMIZATION OF RWM SYSTEMS**

- As we progress into the ITER era, opportunities will arise to upgrade the facility to produce more electricity more efficiently. It is now that must foresee the opportunities of the future and assure the ITER design does not preclude their effective exploitation.**
- Stabilization by feedback on magnetic sensors is already quite a success, permitting access to the wall  $\beta$ -limit.**

## WINDOW -FRAME AND PUSH-PULL COILS

The familiar window-frame coil has its windings in a plane. Its radial magnetic field counters that of the unstable RWM, whereas, the push-pull configuration pushes back the mode *bulges*. These effects take place  $90^\circ$  apart toriodally (for  $n=1$ ). • Each coil is operating at only 50% efficiency.



- For a single belt of coils, two sets of windings are required for 100% operation.

- **Provides a theoretical expectation that the the wall limit of  $\beta$  can be reached by a single belt system.**
- **Experiments should compare single belt systems with either window frames or push pulls, and with multiple belt systems**

# CONCLUSIONS

- **A single-belt system with only window frame coils operates only 50%. Addition of push-pull windings raises the duty factor to 100%.**
- **A multiple belt system also achieves high efficiency.**
- **RWM coils will likely be deployed in a port next to conducting walls. Image currents can be reduced by making the port out of high resistivity material. A plan to reduce image currents is encouraged**