

**Peak-to Average Wall Load**  
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**UCLA**

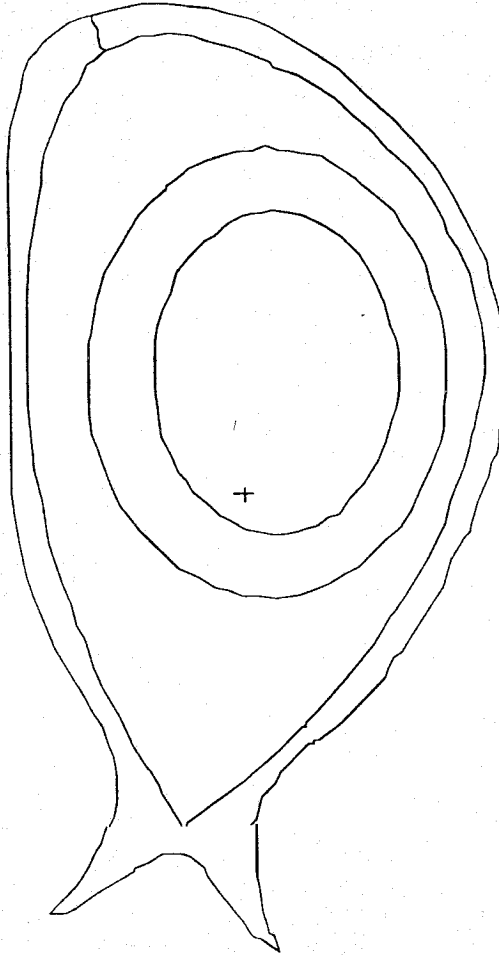
**Poloidal Distribution of Neutron Wall load is Given for:**

- ITER Machine
- VENUS Machine
  - VENUS (S/C magnet)
  - VENUS (N/C magnet)
- ARIES-RS Fusion Power Plant

**Poloidal Surface Heat Load is Shown for ARIES-RS**

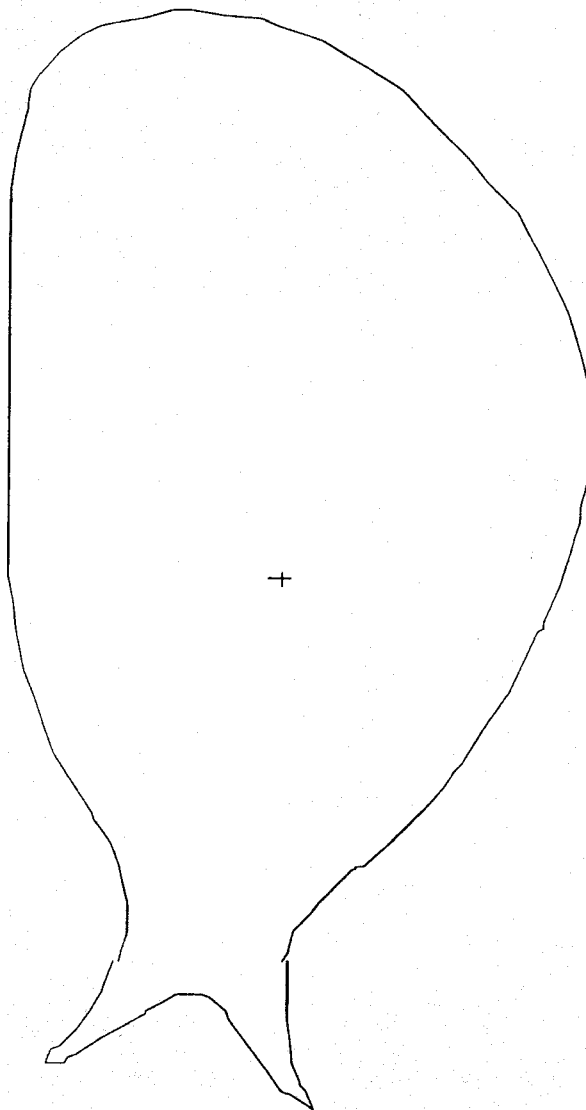
# **Poloidal Distribution of Neutron Wall Load in ITER Machine\***

## **Models for Approximating Plasma Neutron Source**



**Three Plasma Sources, each has flat neutron density**

*\* Ref.: M. Sawan, et al., "3-D Neutronics and Shielding Analysis for ITER Divertor, Fusion Technol., VOL. 30, 601 (Dec. 1996)*



**Exact (Pointwise) Source Distribution in the Plasma Region**

## **Model Description**

- **In the MCNP Model, the first wall surface is segmented into 53 poloidal segments. The length of each segment is less than 0.5 m.**
- **25 segments are used for the inboard region which includes first wall and shield modules 1 to 7**
- **28 segments are used in the outboard region which includes modules 8 to 15.**
- **The plasma facing surface of the divertor cassette is segmented into 21 poloidal segments.**
- **The outboard and inboard first wall surface areas are 817.3 and 415 m<sup>2</sup>, respectively, and the area at the entrance to the divertor region is 77.7 m<sup>2</sup>. The total surface area of the plasma facing surface in the divertor cassette is 293.8 m<sup>2</sup>.**