NINETEENTH FUSION ENERGY CONFERENCE

SESSION PD/T

Saturday, 19 October 2002, at 14:00

Chair: S. PRAGER (USA)

SESSION PD/T: Post-Deadline Talks

Paper IAEA-CN94/PD/T-1 (presented by M.R. Wade)

Discussion

D.D. Ryutov: You have reached 95% non-inductive current drive in some regimes. What would prevent you from turning the inductive current drive off altogether, thereby demonstrating a possibility of operating a tokamak without the central solenoid?

M.R. Wade: Operationally, there is no technical reason why we can't turn off the ohmic current drive. In the low q_{min} case, the edge loop voltage is about 50 mV, so the ohmic current drive is very small. Technically, we have chosen to achieve as high a plasma current as possible in order to maximize the absolute fusion performance.

D.J. Campbell: These results are excellent and very promising for the future. Is it preferable to operate with a single null X-point equilibrium rather than a double null? If so, why?

M.R. Wade: Upper single null operation is necessary to obtain adequate density control in these discharges since the lower divertor in DIII-D is not equipped to pump high triangularity plasmas. It is favorable from a stability point of view to use a double null configuration but the density increases uncontrollably in such a case.

D.J. Campbell: What is the preferred direction of the grad-B ion drift for these experiments and what determines this?

M.R. Wade: Grad-B ion drift is towards the upper divertor in this case and has been chosen to be able to access H-mode with as little power as possible during the current ramp.

Paper IAEA-CN94/PD/T-2 (presented by Y. Takase)

Discussion

E. Joffrin: You are using quite a strong dI/dt in the VT coils in the plasma breakdown. The inboard coil is therefore providing a relatively strong flux. How does this compare with the flux produced by the ohmic coils during normal operation?

Y. Takase: In normal operation, the inboard coils (ohmic coil and inboard VT coil) provide typically 70% of the total flux. In the present case, the inboard VT coil provided only 20% of the total flux.