

# **Infrared surface temperature measurements for long pulse operation, and real time feed-back control in Tore-Supra, an actively cooled Tokamak.**

**D. Guilhem**, C.Balorin, B.Bertrand, J.L.Bondil, C.Desgranges, E.Gauthier,  
M.Lipa, P.Messina, M.Missirlan, R.Mitteau, C.Pocheau, C.Portafaix,  
R.Reichle, H.Roche, A.Saille, S.Vallet

*CEA-Cadarache, 13108 Saint Paul Lez Durance (France)*

## **Abstract**

Tore Supra is a Tokamak ( $I_p=1.5\text{MA}$ ,  $B_t=4\text{T}$ ) aiming at doing researches in the field of controlled nuclear fusion. It has been constructed with a steady-state magnetic field using superconducting magnets and water-cooled plasma facing components (PFC) for high performances long pulse plasma discharges. When not actively cooled, plasma-facing components can only accumulate a limited amount of energy since the temperature increase continuously during the discharge until radiation cooling is equal to the incoming heat flux. Such an environment is found in the JET Tokamak [1] and on TRIAM [3]. In this paper we report the recent results of Tore Supra.

***Published in the QIRT Journal, volume 2, issue 1***