

THE CONTROL OF MODERN TOKAMAKS

J.B. Lister, CRPP; V. Mertens, IPP; R. Yoshino, JAERI

Present tokamaks all require fast feedback control of many high power systems to obtain the basic plasma performance. As discharges have increased in duration from fractions of a second to many seconds, more intelligent control is being applied using fast computers to take decisions. Future devices will provide new challenges for both feedback control and real-time discharge optimisation. Today's tokamaks are starting to explore these requirements. Present work from the TCV tokamak on shape control, from ASDEX-UPGRADE tokamak on intelligent decision making and from JT-60U tokamak on approaching steady state conditions close to operational limits will be used to illustrate these points.