# Measurement of Plasma Electron Temperature and Effective Charge During Tokamak Disruptions

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The fundamental plasma parameters of electron temperature ($T_e$), and effective charge ($Z_{eff}$) are measured simultaneously for the first time during a tokamak major disruption. The measurement of $T_e$ and $Z_{eff}$ is critical in understanding disruption behavior, since together they define both the plasma's resistivity and ionization/energy balance. The measurement technique, which uses extreme ultraviolet (XUV) helium recombination radiation, is described and validated self-consistently by spectroscopy and other diagnostics on the DIII–D tokamak.

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