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12.40 Design of the collection optics for the Core Plasma Thomson Scattering (CPTS) in ITER

Wednesday, 18 April 2018 20:31 (120)

In the ITER Core Plasma Thomson Scattering the scattered light collection optics system is installed both inside and outside the diagnostic port under vacuum. The length of the optical path (~6 m) and the need to shield the neutron and γ radiation increased the complexity of the system with the inclusion of multiple dog-legs, forcing the use of many elements with optical power.
Multiple rounds of design have been required in order to satisfy iteratively the system requirements in terms of resolution, aberration, and shielding. The adoption of quasi-free-form reflective surfaces for several mirrors eventually allowed the correct compromise between all conflicting requirements

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