

**Title:** Detection systems for measurements of high-temperature plasma radiation on the COMPASS tokamak by fast bolometers and soft X-ray detectors

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**Abstract:** Multi-channel spectroscopic diagnostics on the COMPASS tokamak comprising AXUV-based bolometers, soft X-ray (SXR) and visible light detectors will cover a wide spectral range of the core and edge plasma emission, aiming to realize a fast tomography at microsecond time scales. This thesis reports on a development of the bolometric and SXR diagnostics. First, procedures of the detector selection and their tests are described. There the design and tests of the special complex port plug, combining both detection systems, taken into account a strongly limited available space, a heat protection and a shielding during a cleaning glow discharge, is also summarized. Development of new electronic amplifiers and their connection with the data acquisition system is documented. In the last chapters, basic methods for analysis of data collected using these diagnostic systems are introduced.

**Keywords:** tokamak, plasma radiation, photodiode, tomography