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12.39 Conceptual design of feedback system for KSTAR safety

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As the H-mode plasma can be maintained for a long time in KSTAR, the inner wall temperature is increased by the heat flux from the plasma. The increased temperature causes damage to the inner wall. The input power of the heat flux and the heating device concentrates in one place, and the local temperature rise may occur, which is a very dangerous factor for maintaining the plasma stably. Therefore, there is a need for a system capable of monitoring the locally rising the temperature(hot spot). Conventional temperature monitoring devices are mostly used the thermocouple, which are not only slow to respond to, but also unsuitable for monitoring of the hot spot. Therefore, a temperature monitoring system using an IR camera capable of measuring the local temperature at a high speed is required. In this paper, we propose a conceptual design of a suitable surveillance system that can be used in KSTAR devices.

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