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Local measurement of the plasma emission using the Zeeman effect in TRIAM-1M tokamak TAIICHI SHIKAMA, Graduate School of Engineering, The University of Tokyo, SHINICHIRO KADO, High Temperature Plasma Center, The University of Tokyo, HIDEKI ZUSHI, Advanced Fusion Research Center, Research Instutute for Applied Mechanics, Kyushu University, ATSUSHI IWAMAE, Graduate School of Engineering, Kyoto University, SATORU TANAKA, Graduate School of Engineering, The University of Tokyo — The position of plasma emission is measured using the Zeeman patterns in the spectral shape in the TRIAM-1M superconducting tokamak. From the spectral measurement which covers the poloidal cross section, it is shown that the beryllium-like oxygen ions are distributed in the region slightly inside the separatrix and neutral hydrogen and helium atoms are localized in the boundary region of the poloidal limiter shadow. For obtaining the better spatial resolution, the σ components of the emission spectrum are resolved by attaching a linear polarizer in front of the object lens, and the Zeeman pattern in the spectral shape is calculated using the quantum mechanical method. In the boundary region, low temperature atoms having inward flow velocity of about 1 to 4 km/s across the magnetic field line are observed for hydrogen and helium. The time resolved measurement of position of emission and flow velocity suggests that the change in the position of magnetic axis leads to the change of the plasma-wall interaction such as recycling rate or inward neutral flow velocity which might be driven by the radial neutral pressure gradient.

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