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Characteristics of cryoplasma below boiling temperature of N₂ HITOSHI MUNEOKA, JAI HYUK CHOI, KAZUO TERASHIMA, Graduate School of Frontier Sciences, The University of Tokyo — Cryogenic plasmas, whose gas temperatures are below room temperature, possess interesting characteristics. The temperature dependences of fundamental characteristics of cryoplasma were studied in detail. We used two types of parallel plate electrodes and the ambient He gas temperature was set to values less than boiling temperature of N₂. The breakdown voltage and excited species changed drastically at a temperature of 40 K. Two discharge modes (Townsend and glow mode) were observed by current-voltage measurements and the power consumption in the Townsend mode was confirmed to be lower than 30 mW.

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