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**Capacitively Coupled Plasma Source with Comb-Type Electrodes for Uniform Plasma Processing** H. TOYODA, K. KANETAKE, Nagoya Univ., T. HIRAMATSU, T. MATSUDA, T. KAWAHARAMURA, M. FURUTA, T. HIRAO, Kochi Univ. Technol. — Recently, electronic devices on flexible films have been given much attention, due to its flexibility, lightness and so on. To fabricate such devices, however, low temperature processing is required because substrates for flexible devices are mostly made from polymer films such as polyimide and so on. In general, film deposition at low temperatures is difficult due to low surface migration of deposition precursors. However, high density plasmas may have possibility for such film deposition due to high flux of precursors and moderate ion irradiation on the film-depositing surface. In this study, a capacitively coupled plasma source with comb-shaped electrodes is developed for low temperature plasma enhanced chemical vapor deposition aiming at fabrication of flexible electronic devices. Application of the parallel magnetic field contributed to the increase in the plasma density and relatively high-density plasma ( $3 \times 10^{10} \text{ cm}^{-3}$ ) was obtained with low power density of  $0.4 \text{ W/cm}^2$ . Spatial profile of the plasma density is measured and uniform plasma production was confirmed. The result suggests that the present plasma source has capability of low-temperature thin film deposition with one-dimensionally long plasma production for roll-to-roll plasma processing.

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