Hybrid plasma source with inductive and capacitive fields, which is often *called RF-biased inductively coupled plasma (ICP) or reactive ion etcher, has been widely used in semicon*ductor, display, and solar-cell etching processes [1]. The original concept for the hybrid plasma source is an expectation that the antenna coil of the ICP controls the plasma density while the RF bias controls the ion energy independently. However, the RF bias can act as plasma source like an asymmetric capacitively coupled plasma (CCP) and directly affect plasma parameters such as electron temperature, plasma density, and electron energy distribution. In this talk, I will present effects of inductive and capacitive fields of the hybrid plasma source on the plasma parameters, electron heating, and processing result [2-9]. This invited talk will find the fundamental understanding of the hybrid plasma source and give open possibilities for applications to various applied fields to find novel control knob and optimizing processing conditions for improvement of the device quality and processing results.

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