INDUCTIVELY COUPLED PLASMA REACTOR AND PROCESS

Abstract of the Disclosure

An inductively coupled plasma reactor and method for processing a semiconductor wafer (28). The inductively coupled plasma reactor (10) includes a plasma source (16) having a plurality of channels (38,44) in which processing gases are independently supplied to each channel. A gas supply system (20) includes a plurality of gas feed lines (34,35,36) each capable of supplying an individual flow rate and gas composition to the plurality of channels (38,44) in the plasma source (16). Each channel is surrounded by an independently powered RF coil (54,56), such that the plasma density can be varied within each channel (38,44) of the plasma source (16). In operation, a material layer (66) overlying a semiconductor wafer (28) is either uniformly etched or deposited by localized spatial control of the plasma characteristics at each location (64) across the semiconductor wafer (28).

Figure 1 accompanies this abstract.

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