

Title (en)

A PLASMA REACTOR HAVING A SYMMETRIC PARALLEL CONDUCTOR COIL ANTENNA

Title (de)

ANTENNE MIT SYMETRISCHER, AUS PARALLELEN LEITERN GEFERTIGTE SPULE FÜR PLASMAREAKTOR

Title (fr)

REACTEUR A PLASMA A ANTENNE A ENROULEMENTS DE CONDUCTEURS PARALLELES ET SYMETRIQUES

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Application

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Abstract (en)

[origin: WO0205308A2] The invention in one embodiment is realized in a plasma reactor for processing a semiconductor workpiece. The reactor includes a vacuum chamber having a side wall and a ceiling, a workpiece support pedestal within the chamber and generally facing the ceiling, a gas inlet capable of interleaved parallel conductor coil antenna overlying the ceiling and including a first plurality conductors wound about an axis of symmetry generally perpendicular to the ceiling in respective concentric helical solenoids of at least nearly uniform lateral displacements from the axis of symmetry, each helical solenoid being offset from the other helical solenoids in a direction parallel to the axis of symmetry. A RF plasma source power supply is connected across each of the plural conductors. In another embodiment, the antenna is a solenoidal segmented parallel conductor coil antenna overlying the ceiling and including a first plurality conductors wound about an axis of symmetry generally perpendicular to the ceiling in respective concentric side-by-side helical solenoids, each helical solenoid being offset by a distance on the order of a conductor width of the plurality of conductors from the nearest other helical solenoids in a direction perpendicular to the axis of symmetry, whereby each helical solenoid has slightly different diameter.

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