

What is claimed is:

1. A method, comprising:

heating a substrate contained within a process chamber to a temperature in a range from about 100°C to about 700°C;

producing a plasma with a power generator emitting an RF power of greater than 3 kW;

flowing a hydrocarbon precursor into the plasma within the process chamber;

forming a carbon hard-mask layer on the substrate at a rate of greater than 5,000 Å/min; and

flowing a dopant precursor into the plasma within the process chamber, wherein the dopant precursor comprises a nitrogen-containing precursor, a sulfur-containing precursor, a boron-containing precursor, or any combination thereof, wherein the dopant precursor comprises the boron-containing precursor, and wherein the boron-containing precursor comprises diborane, triborane, a trialkyl borane, a triallyl borane, or any combination thereof.