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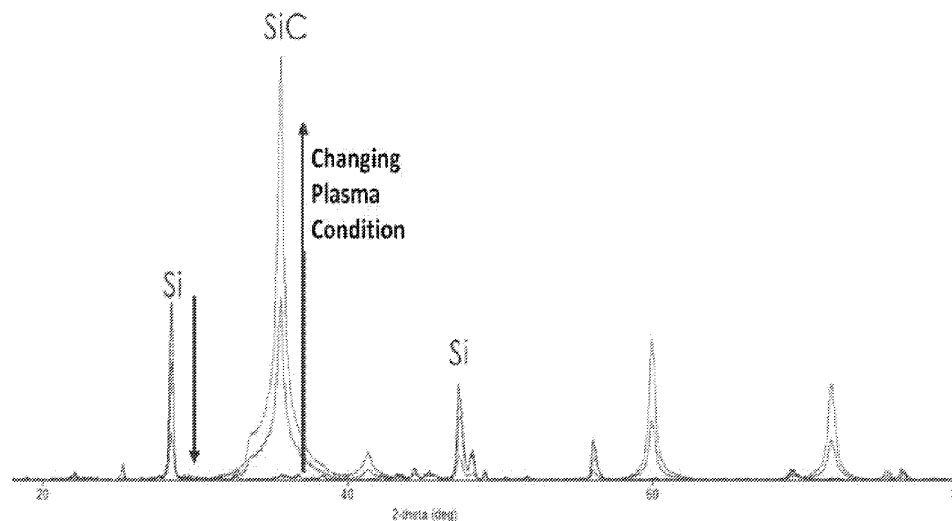


FIG. 1

(57) Abstract: Disclosed herein are systems and methods for synthesis of polymer derived ceramic materials, including silicon oxycarbide comprising silicon metal. In some embodiments, the silicon metal is formed by carbothermal reduction during thermal processing. In some embodiments, the thermal processing comprises microwave plasma processing. In some embodiments, the silicon metal forms nanodomains within a structure of the silicon oxycarbide ceramic material.

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