Abstract Submitted
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Carbide Derived Carbon Super Capacitor Application[1] JAMES APPELGATE, DAVE BAUER, JAMES QUIRIN, S.E. LOFLAND, J.D. HETTINGER, Rowan University, M. HEON, Y. GOGOTSI, Drexel University — Supercapacitors can be applied into many different fields from nano-robots to high density energy storage. Growing TiC films from a know recipe and removing the transition metal element, Titanium, by chlorination leaves a carbon film that can then be applied as an electrode in a super capacitor. The problem is when the Titanium is removed from the film the stress induced by this process causes the films to fracture into isolated islands. The islands allow electrons to travel across them every easily, but there is no transfer of electrons from island to island. We present results of an investigation of a technique control the location of the fractures and use them to our benefit. Ideally, we want to create them to fracture in parallel lines. To force these fractures into straight lines we will purchase substrates with thermal SiO_2 created on the surface of Si. Using an etching process we will removed a channel of SiO_2 the same as the thickness of the TiC film we plan on growing. These channels will allow the fractures to form in a correlated way creating a straight line.

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