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Pushing a physics discovery towards commercial impact

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In 1997 my research group discovered that shining intense, ultrashort laser pulses on the surface of a crystalline silicon wafer drastically changes the optical, material and electronic properties of the wafer. The resulting textured surface is highly absorbing and looks black to the eye, making this 'black silicon' useful for a wide range of commercial devices, from highly-sensitive detectors to improved photovoltaics. Over the following ten years we investigated this material and developed a prototype detector. The prototype gave us the confidence to commercialize black silicon. Togethe r with a graduate student, I founded SiOnyx. The company, based in Beverly, MA, is in the process of manufacturing the first commercial products based on black silicon.