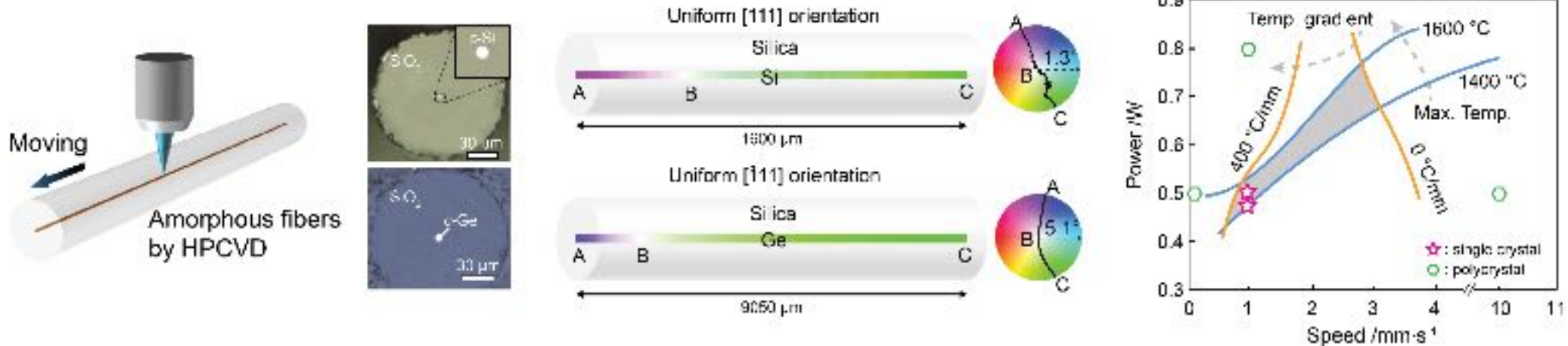


Single-crystal Semiconductor Core Fibers



The availability of high-quality semiconductors in fiber form could be transformative in the vision of **all-fiber optoelectronics**. A scanning laser crystallization process developed has produced the first low-optical-loss (< 1 dB/cm), narrow single-crystal Si and Ge fibers. These fibers will enable high-power non-linear photonics in the infrared. A combination of experiments and simulations suggest that long-length single crystals can be grown within a processing window of the laser irradiation power/scanning speed. The same laser heating technique could be used to selectively crystallize 3D metalattices and potentially induce novel strain states.