

Abstract Submitted  
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**Writing Graphene Nanoribbons on SiC by Selective Graphitization**<sup>1</sup> SEFAATTIN TONGAY, MAX LEMAITRE, Department of Material Science and Engineering, University of Florida, JOEL FRIDMANN, Raith USA Inc., Ronkonkoma, New York, ARTHUR F. HEBARD, Department of Physics, University of Florida, BRENT GILA, BILL R. APPLETON, Department of Material Science and Engineering, University of Florida — We describe a new technique for selective graphene growth onto 4H- and 6H-SiC by ion implantation. The presented technique is as easy as patterning (ion implanting) regions where graphene layers are desired followed by annealing to 100 C below the graphitization temperature ( $T_G$ ) of SiC. We find that ion implantation of SiC lowers the  $T_G$  of SiC, allowing selective graphene growth at temperatures below the  $T_G$  of pristine SiC and above  $T_G$  of implanted SiC. Presented results provide a new technique to pattern device structures ranging from nanometers to microns in size without using conventional lithography and chemical processing.

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