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Growth and Properties of Self-Aligned MgO Nanowires ELENA CIMPOIASU, Dept. of Physics, United States Naval Academy, Annapolis, MD 21402, ROBERT F. KLIE, Dept. of Physics, University of Illinois at Chicago, Chicago, IL 60657, RYAN A. MUNDEN, Dept. of Applied Physics, Yale University, New Haven, CT 06520, MARK A. REED, Depts. of Electrical Engineering and Applied Physics, Yale University, New Haven, CT 06520 — A simple VLS route was used to produce self-aligned MgO nanowires on both polished crystalline (c-axis sapphire) and ceramic (alumina) surfaces. Growth on alumina produces vertically-aligned, very thin nanowires, indicating enhanced growth at the liquid-solid interface. Growth on polished sapphire results in faceted MgO nanowires which are perpendicular to the r-plane of sapphire and show evidence of competing vapor-solid growth mechanism. The difference in the morphology and structure of the nanowires grown using the two different substrates clearly illustrates the affect of substrate on the growth process. *This work was partially supported by DARPA, by the Department of Homeland Security, and by the National Science Foundation.*

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