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Research in growth, characterization, and applications of wide bandgap materials at a Primarily Undergraduate Institution[1] CHRISTOPHER MOORE, ROBERT LOUDER, Coastal Carolina University — Zinc oxide (ZnO) is a wide bandgap semiconductor that has attracted a great deal of attention with demonstrated applications in ultraviolet (UV) light detection, air-quality monitoring, missile warning systems, gas detection, and utilization as light-emitting diodes. Our undergraduate research group has been characterizing the growth of various ZnO film and nanowire systems, and we have fabricated and characterized ZnO-based devices, such as UV photodetectors, gas sensors, and photocatalysts. The materials and characterization systems with which we are working and our small niche within the broader field combine to address many of the challenges associated with undergraduate research. In this talk, we will discuss these challenges and how we have overcome them. We will also discuss how we have taken small amounts of money and crumbling facilities and produced a strong research group that involves 3-5 undergraduate students per semester, publishes approximately two peer-reviewed articles per year with undergraduate co-authors, and has achieved a steady stream of external funding.

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