



Making Diodes in the Classroom

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Jon Scott, a teacher from our teacher's workshop, with assistance from University of Illinois researchers Dane Sievers and others, has developed an engaging laboratory, using materials readily available in most K-12 school laboratories, which fills a hole in existing K-12 curriculum related to electronics and circuitry. In this laboratory, students create a basic component important to the semiconductor industry—a Schottky diode—by fusing pieces of gold and aluminum foil about 5 mm apart to an n-type silicon wafer. In this laboratory, students test their device and gain not only an understanding of the scientific method, but also a more complete understanding of how microelectronics fabrication processes result in functioning devices.

This activity has been under development for several years and is continuing to be refined. It has been tested successfully with multiple classes in several school districts and has become a standard part of the content presented at our summer institutes for teachers. This activity has also been disseminated to others outside the Nano-CEMMS teacher network through presentations at multiple professional education conferences, including the National Educators Workshop at NCA&T.

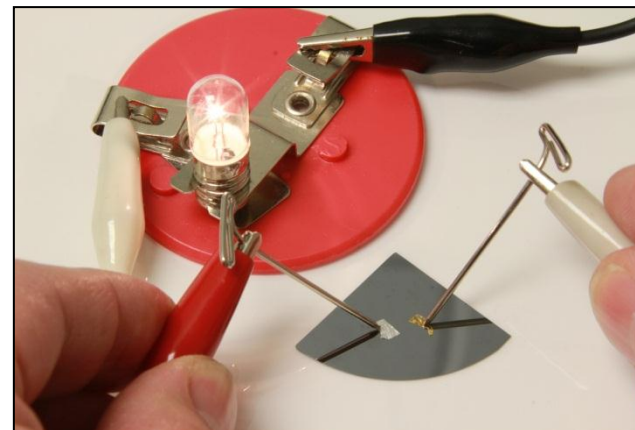


Figure 7.8: (Left) A student creates a Schottky diode. (Right) A student tests the diode to check that its current conducts in only one direction.