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The Continuing Development of a Low-Cost Scanning Tunneling Microscope for High School and College Classrooms BRETT AMEN, Doane College, AXEL ENDERS, University of Nebraska - Lincoln, MARK PLANO CLARK, University of Cincinnati — We have been developing an inexpensive, room-temperature, atmospheric-pressure scanning tunneling microscope (STM) with atomic resolution for use in high school class rooms and undergraduate teaching laboratories. Because of a lack of consistency during coarse approach and withdrawal of the tip head using the inertial slip-stick design, we are developing a "walker" motion consisting of four linear piezo actuators moving independently under microcontroller control. In addition to improving the coarse motion, we also need more robust atomically sharp tips for scanning surfaces at atmospheric pressure. We are in the process of producing sharp carbon fiber tips to make this STM an effective tool for the intended audience.

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