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Having Fun with High School Teachers and Students Making Atomic Force Microscopy[1] CHANG Y. RYU, Rensselaer Polytechnic Institute, PAUL FEDOROFF, TOM PITTMAN, Burnt Hill-Ballston Lake High School — As a type of scanning probe microscopy, atomic force microscopy (AFM) is a powerful tool that allows us scientists and engineers to visualize, characterize and manipulate nanostructures in both hard and soft materials. In particular, AFM has served as an invaluable tool for researchers working on nanotechnology, which is a subject of uprising interests to many high school students and teachers. As a part of high school educational outreach program called "Bringing Nanotechnology to the Classroom" in the NSF Nanoscale Science and Engineering Center (NSEC) at Rensselaer Polytechnic Institute, we were fortunate to interact with high school teachers and learn more about the opportunities to infuse principles used in AFM into the physics laboratory sessions in high schools. After showing AFM at NSEC to high school teachers, using wood blocks, hex saw and speaker coils, we have constructed AFM model and used it to demonstrate the resonance frequency of vibration and magnetic properties of materials in high school physics classroom. In addition, using LEGO Mindstorm Robotics, conceptual AFM has been made by high school students as a part of high school engineering course. Principles of controlling the motion of objects using gears with an emphasis of team work have been covered in the LEGO AFM project for high school students.

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