

## **The scanning tunneling microscope: an amazing tool for an atomic-scale view of surfaces**

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The scanning tunneling microscope has been an extremely successful experimental tool for nanoscience because of its ability to image surfaces of material with atomic-scale spatial resolution. In recent years this has been combined with the use of low temperatures, culminating in the ability to reposition individual atoms at will and build nanostructures one atom at a time.

In this talk we will focus on the development of atom manipulation and its application to scientific discovery over the last 20 years. At the beginning lies the tool development, which enabled Don Eigler to write the logo of IBM one atom at a time. We will then explore some applications of atom manipulation for scientific discoveries, including “molecules cascades”, a mechanical computer on the atomic scale.

In preparation for this talk I suggest watching the movie “A Boy and his Atom” on YouTube. It tells a simple story of an atom-sized character named Atom who plays with an atom. The behind-the-scenes section gives lots of information on the amazing world of atoms on surfaces. This talk is focused on a general audience with an inquisitive mind.