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Nano Imaging

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The breakthrough technologies that have allowed for imaging at the nanoscale have also raised new questions about scientific representation. Nanoscale instruments have pushed the limits set by light, magnetism, and quantum mechanics. Although images made by electron or scanning probe microscopes may appear to be straightforward pictures of atomic structures, in actuality these images are based on very complex mathematical functions, abstract representations, as well as computer generated data of materials outside of the electromagnetic spectrum. Naturalistic images of atoms and molecules are often as much a reflection of scientists’ own aesthetic interpretations as they are representations of the nanoscale.

In addition, these images do not serve as merely depictions; they are actual tools for altering the physical world. Using scanning probe microscopes, scientists can make changes in real time. By scanning the probe over a sample’s surface, the sample itself is altered. In this regard, nanoimaging simultaneously both represents and manipulates matter.

At the nanoscale, seeing is also constructing.