

# MANIPULATION OF NANO-OBJECTS BY A FORCE-FEEDBACK HAPTIC INTERFACE

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In near upcoming we have much to learn about the nano-scale world, including how properties such as mechanical properties, electrical transport, and dynamics are affected by the atomic scale structure of the nano-objects and their interfaces. Nanomanipulation provides exciting insight into these problems by allowing us to probe individual nano-objects with great facility, and to combine property characterization with structural information. Advanced user interfaces will continue to play a critical role in making experiments more transparent to the user, and enabling the scientist to be virtually in the nano-scale world. The current work presents an integration of a force-feedback haptic interface SPIDAR (SPace Interface Devices for Artificial Reality) with its controller, a Scanning Probe Microscope (SPM) and a PC with high graphic facilities. This setup allows the scientist to be immersed in real time in the nano-scale world. The benefits of this are: improved perception of 3D structures, more effective exploration of the sample, the ability to observe dynamic processes in near real time, and the ability to interactively modify the surface.

9.7 cm

13.4 cm

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