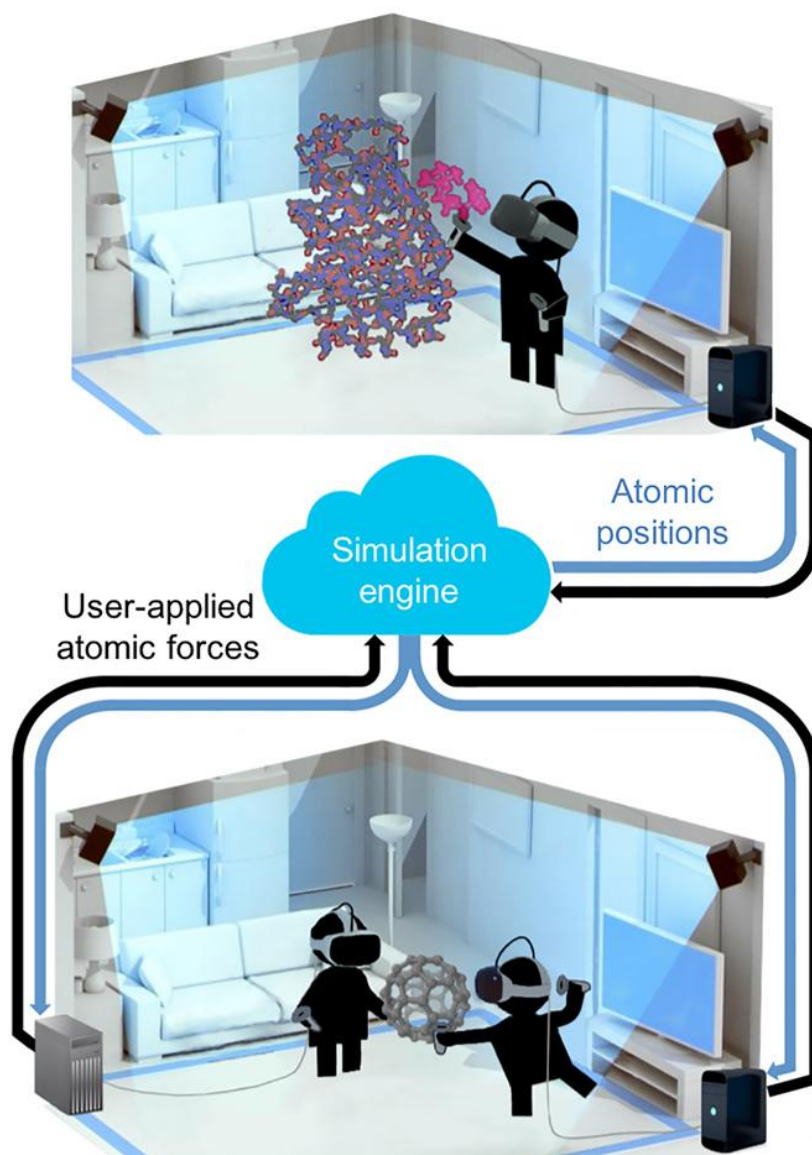


# Prospects of Modern Man-Machine Interfaces for Chemistry Education

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In this talk, I will elaborate on modern computer hardware that allows one to dive deep into molecular worlds. This new level of immersion into molecular problems allows us to re-think the way chemical concepts are taught. Combined with interactive quantum mechanics, molecular settings can be explored with a high degree of physical realism. The constant stream of data (forces, energies, orbitals, density distributions, ...) requires new approaches to experience these results (such as haptic force-feedback devices). Virtual and augmented reality allow for the discussion of chemical reactivity and molecular properties in real-time by groups of researchers or study groups. Even new types of remote-teaching approaches can be imagined.



Technical schematic of the HTC Vive VR setup that we designed to carry out the studies outlined here.  
<https://advances.sciencemag.org/content/4/6/eaat2731>