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**QuVis interactive simulations: tools to support quantum mechanics instruction**

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Quantum mechanics holds a fascination for many students, but its mathematical complexity and counterintuitive results can present major barriers. The QuVis Quantum Mechanics Visualization Project (www.st-andrews.ac.uk/physics/quvis) aims to overcome these issues through the development and evaluation of interactive simulations with accompanying activities for the learning and teaching of quantum mechanics. Over 90 simulations are now available on the QuVis website. One collection of simulations is embedded in the Institute of Physics Quantum Physics website (quantumphysics.iop.org), which consists of freely available resources for an introductory course in quantum mechanics starting from two-level systems. Simulations support model-building by reducing complexity, focusing on fundamental ideas and making the invisible visible. They promote engaged exploration, sense-making and linking of multiple representations, and include high levels of interactivity and direct feedback. Simulations are research-based and evaluation with students informs all stages of the development process. Simulations are iteratively refined using student feedback in individual observation sessions and in-class trials. Evaluation has shown that the simulations can help students learn quantum mechanics concepts at both the introductory and advanced undergraduate level and that students perceive simulations to be beneficial to their learning. Recent activity includes the launch of a new collection of HTML5 simulations that run on both desktop and tablet-based devices and the introduction of a goal and reward structure in simulations through the inclusion of challenges. This presentation will give an overview of the QuVis resources, highlight recent work and outline future plans. QuVis is supported by the UK Institute of Physics, the UK Higher Education Academy and the University of St Andrews.