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Quantum Mechanics for Everybody: An autonomous MOOC on EdX for nonscientists[1] JAMES FREERICKS, DYLAN CUTLER, Georgetown University, LUCAS VIEIRA-BARBOSA, Lucas Vieira Education Software and Motion Design — We have launched a MOOC for nonscientists that teaches quantum mechanics using the Feynman methodology as outlined in his QED book and in a similar book by Daniel Styer. Using a combination of videos, voice-over powerpoint animations, computer simulations and interactive tutorials, we teach the fundamentals of quantum mechanics employing a minimum of math (high school algebra, square roots, and a little trigonometry) but going into detail on a number of complex quantum ideas. We begin with the Stern-Gerlach experiment, including delayed choice and Bell's inequality variants. Then we focus on light developing the quantum theory for partial reflection and diffraction. At this point we demonstrate the complexity of quantum physics by showing how watched and unwatched two-slit experiments behave differently and how quantum particles interfere. The four week course ends with advanced topics in light where we cover the idea of an interaction free measurement, the quantum Zeno effect and indistinguishable particles via the Hong-Ou-Mandel experiment. We hope this MOOC will reach thousands of students interesting in learning quantum mechanics without any dumbing down or the need to learn complex math. It can also be used with undergraduates to help with conceptual understanding.

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