Photonic Orbital Angular Momentum: A Beautiful Quantum Laboratory

Anton Zeilinger

Vienna Center for Quantum Science and Technology (VCQ), Faculty of Physics, University of Vienna & Institute of Quantum Optics and Quantum Information (IQOQI), Austrian Academy of Sciences

Orbital Angular Momentum States form a discrete, infinite dimensional Hilbert space. In the talk, I will report on some recent experiments and theoretical concepts where these states have been applied to implement entanglement in higher dimensions. Some of these results were achieved with the help of the computer algorithm Melvin which is able to find very counter-intuitive setups for experiments