

Abstract Submitted
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Adiabatic field-free alignment of asymmetric top molecules with an optical centrifuge ALEKSEY KOROBENKO, VALERY MILNER, Department of Physics and Astronomy, University of British Columbia — We use an optical centrifuge to align asymmetric top SO_2 molecules by adiabatically spinning their most polarizable O-O axis. The effective centrifugal potential in the rotating frame confines sulfur atoms to the plane of the laser-induced rotation, leading to the planar molecular alignment which persists after the molecules are released from the centrifuge. Periodic appearance of the full three-dimensional alignment, typically observed only with linear and symmetric top molecules, is also detected. Together with strong in-plane centrifugal forces, which bend the molecules by up to 10 degrees, permanent field-free alignment offers new ways of controlling molecules with laser light.

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