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ACCELERATING POLARIZATION STATES AND STRUCTURES

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Optical fields can often show unexpected effects when interference effects are used. Examples of these are angularly accelerating beams. In this work we present a novel structure of light that exhibits State-of-Polarization (SoP) structures that rotate with acceleration and deceleration when propagating in free space. We achieve this by creating a superposition of beams with accelerated transport of intensity in different polarization components, in such a way that the intensity profile remains constant, but each polarization projection changes differently. The Stokes vector for each point of the transverse profile exhibits a circular trajectory in the Poincaré sphere, showing an accelerated rotation around the axis of the generating polarization basis. We hope that this vector field with non-trivial structures can be used to study the interaction of vector light with matter.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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