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3-dimensional full characterization of laser pulses with optical angular momentum

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Laguerre-Gaussian laser beams with optical angular momentum are of interest for many experiments including structured wakefields for positron acceleration [1]. To confirm the far-field intensity distribution during the interaction with the target, we measure the electric field in the spectral domain of the laser using the device INSIGHT [2]. Then the laser pulse at focus can be fully reconstructed in 3 dimensions. To correct the wavefront distortions and to achieve a perfect donut-shape focus, the impacts on the focus shape is also studied by scanning the Zernike polynomials applied to the wavefront.

References

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