**ABSTRACT**

Based on vectorial Debye theory, the effect of annular apodization of tightly focused partially coherent radially polarized vortex beams in the focal field of high NA lens is studied. The intensity distribution in the focal region is illustrated by numerical calculations. It is found that the focal depth of the generated focal segment strongly dependent on the source coherence length for unobstructed case and the presence of annular aperture reduces the variation of focal depth with source coherence length.