

## SINGULAR BEAMS IN UNIAXIAL CRYSTALS

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### S u m m a r y

We present a method for the generation of optical vortices nested in a singular beam that propagates along a uniaxial crystal and a polarized filter. The theoretical analysis based on solving the paraxial wave equation showed that the paraxial fundamental Gaussian beam can transform into a singular beam bearing the double charged optical vortex: the left-hand circularly polarized beam converts into the right-hand polarized beam with a positive topological charge whereas the right-hand one generates the left-hand polarized beam with a negative charged vortex. Moreover, the device can transform high-order singular beams in such a way that the negative topological charge of the vortex in the right-hand polarized beam raises by two units, but the positive vortex charge in the same beam diminishes by two units. The computer simulation of the process is accompanied by the numerous experimental results.