

This work reports on physical properties of a novel  $\text{CeCo}_{0.715}\text{Si}_{2.285}$  compound. The compound crystallizes in the  $I-4m2$  space group structure with extremely elongated unit cell ( $a = 4.13\text{\AA}$ ,  $c = 32.84\text{\AA}$ ) containing  $\text{BaAl}_4$  structural patterns. In zero magnetic field it orders antiferromagnetically at  $T_N = 10.0\text{K}$ . Under application of magnetic field along the  $c$ -axis it manifests numerous magnetic transitions in small fields ( $B < 0.5\text{T}$ ), resembling the so-called ‘devil’s staircase’ behaviour (e.g.  $\text{CeSb}$ ,  $\text{CeCoGe}_3$ ). The magnetization is almost constant from 1T up to 45T for  $H||c$  but considerably reduced ( $0.3\mu_B/\text{Ce}$ ) with respect to the free  $\text{Ce}^{3+}$  ion. For fields applied along the  $a$ -axis typical behaviour for a hard axis in a material with uniaxial anisotropy is observed. The performed single crystal neutron diffraction experiment did not allow complete determination of magnetic structure.