materials

Supplementary Materials

Orientation-Independent Yield Stress and Activation Volume of Dislocation Nucleation in $LiTaO_3$ Single Crystal by Nanoindentation

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$LiTaO_3$ single crystal is belonging to trigonal *R*3*c* space group with ion bonding structure and commonly depicted by hexagonal axes. Figure S1 shows the schematic illustration of atomic arrangement in $LiTaO_3$ single crystal and the typical orientations $(1\bar{1}02)$, $(\bar{1}012)$ and $(01\bar{1}2)$ i.e., X-112°, Y-36° and Y-42° were displayed in Fig. 1(a)-(c), respectively. Li atom lies in an oxygen layer that is c/4 away from the Ta atom, and Ta atom is centered between oxygen layers. The representative surface morphologies of three planes were also exhibited in Figure S1 below the lattice diagrams.

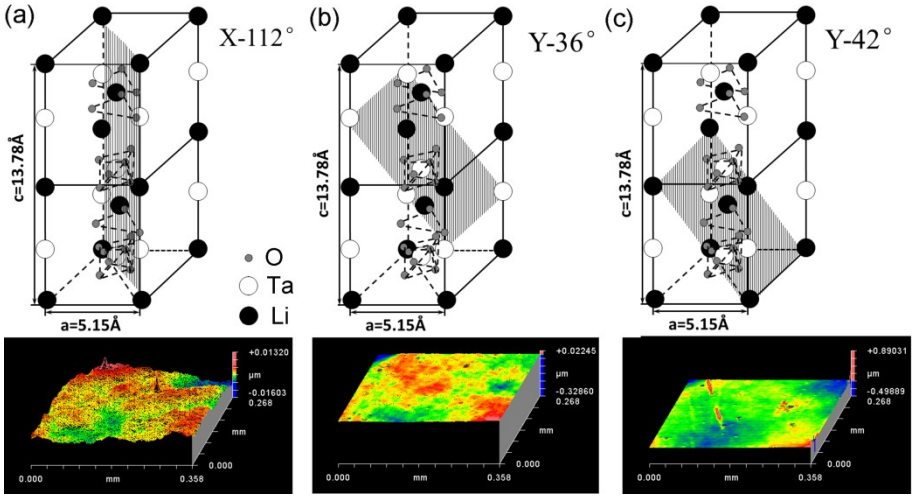

Figure S1. Schematic illustration of atomic arrangements for the typical orientations (a) X-112°, (b) Y-36° and (c) Y-42° in $LiTaO_3$ single crystal, and their surface morphologies by optical profile. See *Ma, Y.; Huang, X.W.; Song, Y.X. et al. Materials* 2019, *12*, *1683*.