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Coláiste na hOllscoile Corcaigh

Supporting information for manuscript titled 'Absence of Evidence ≠ Evidence of Absence: Statistical Analysis of Inclusions in Multiferroic Thin Films'

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A. Site specific cross section preparation

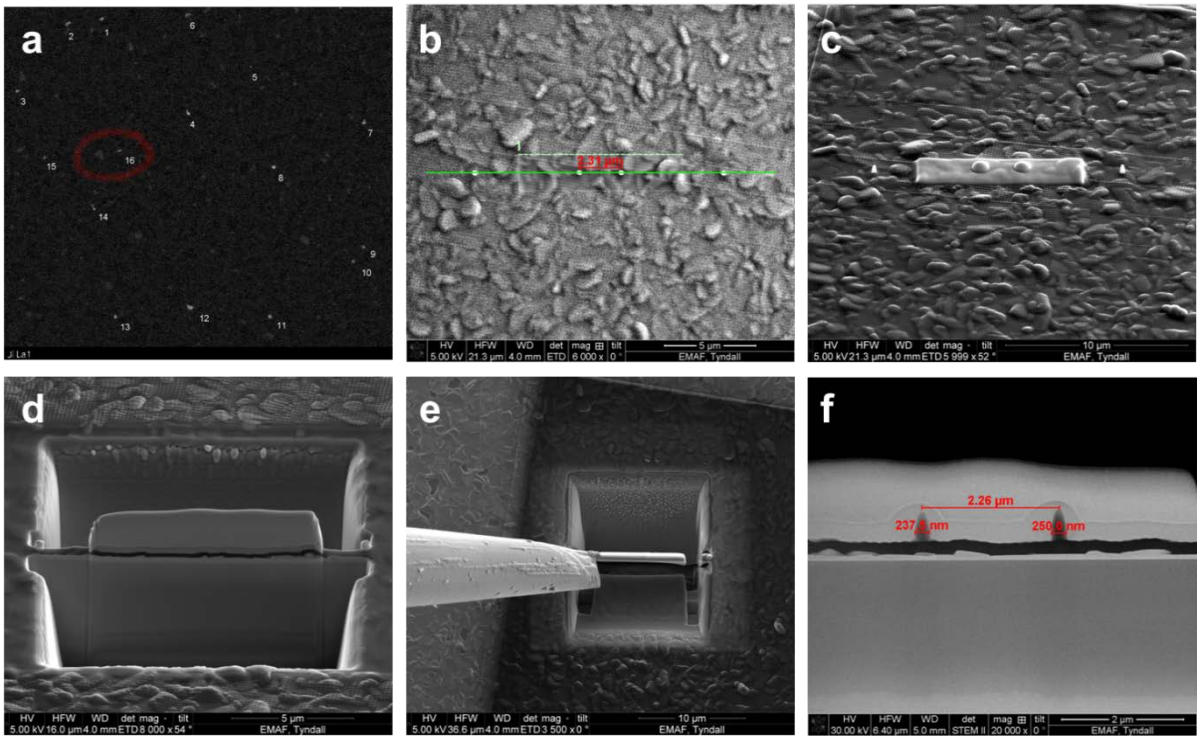

Figure S1. Site specific TEM cross section sample preparation on the B6TFMO. a) One ‘small bright spot’ and one ‘large pale area‘ were chosen, b) marked with carbon pillars, c) protected with platinum. d) Lamella prepared, e) lifted out, before attached to TEM half grid and f) analysed with STEM.

B. Representative TEM images

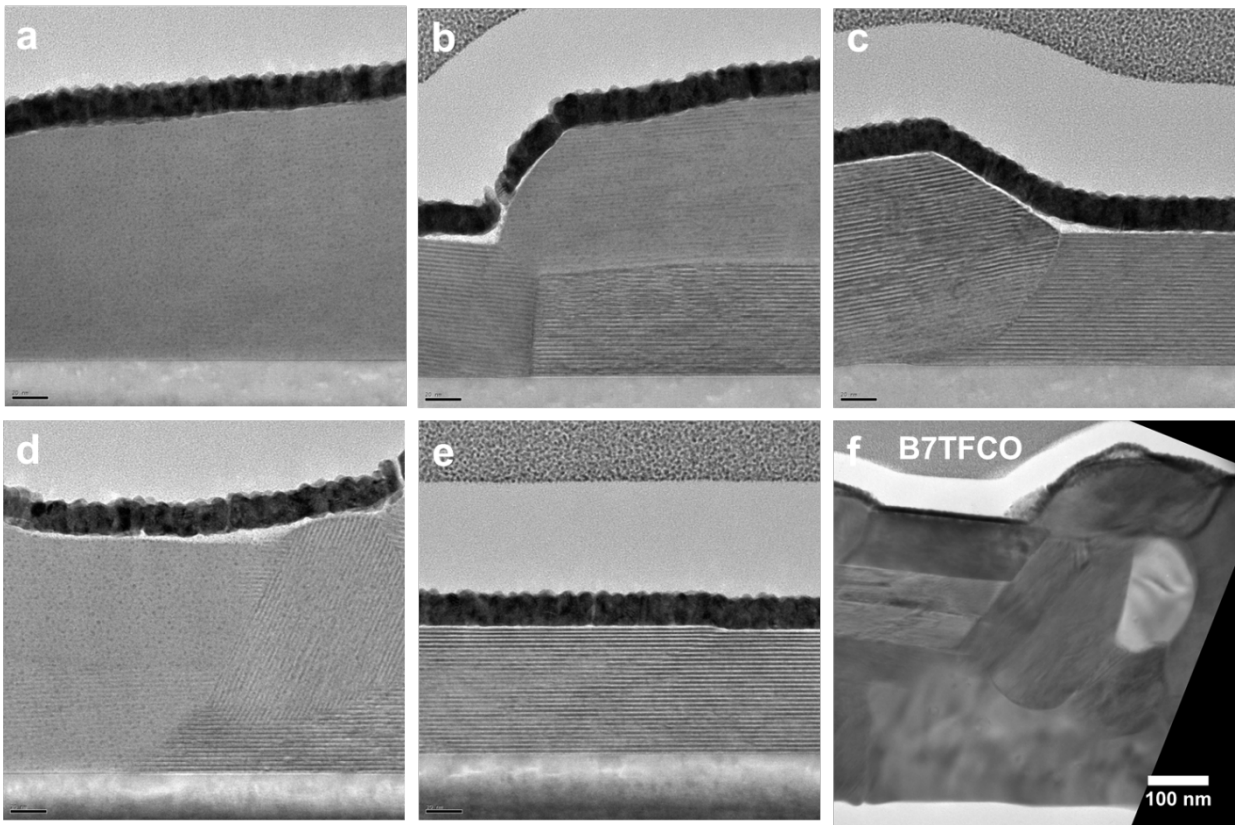

Figure S2. Representative TEM images of B6TFMO from the 30µm long lamella. The single crystalline grains are tightly packed without any appearing inclusions of different phases. The scale bar is 20 nm. f) Here a BTF7C3O sample is depicted for comparison to illustrate the presence of inclusions (bright grain at the middle right hand side of the image, scale bar 100 nm). [1]

1 Keeney, L. *et al.* Room temperature ferroelectric and magnetic investigations and detailed phase analysis of Aurivillius phase $Bi_5Ti_3Fe_{0.7}Co_{0.3}O_{15}$ thin films. *JAP* **112**, 052010 (2012).