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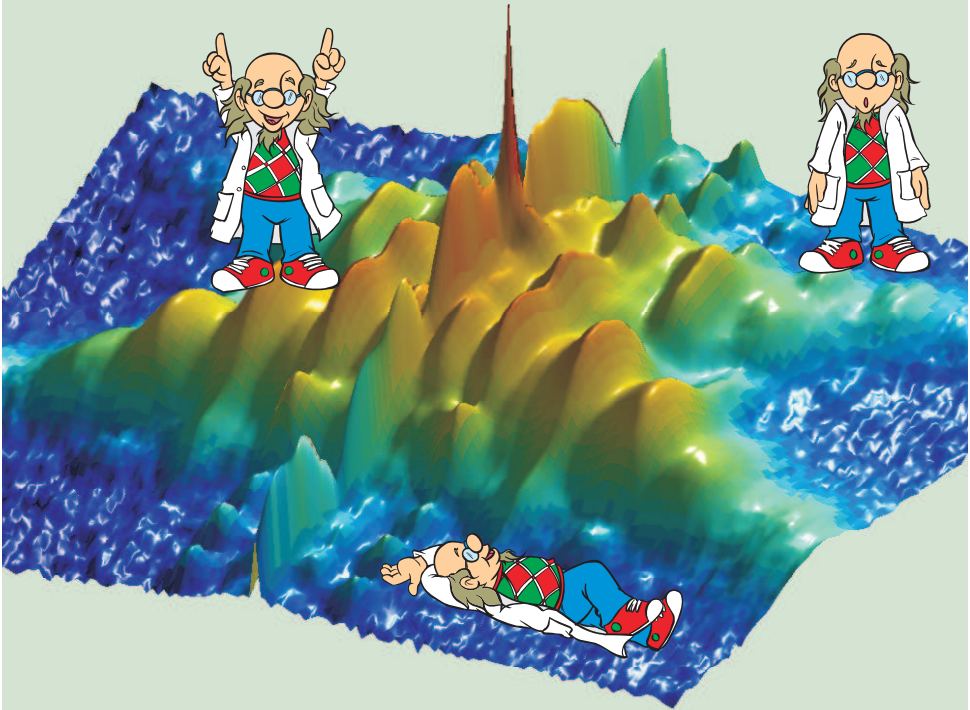
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# Structure and domain formation in ferroelectric thin films



Ard H.G. Vlooswijk



# Structure and domain formation in ferroelectric thin films

This research has been performed in the Solid State Chemistry group of the Zernike Institute for Advanced Materials at the University of Groningen, the Netherlands. It was part of the research program of the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO).



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*Cover: (front) Solid state chemists in the “up” and “down” state and “relaxed”, while being lost in the reciprocal space around the (001) Bragg reflection of a SrRuO<sub>3</sub>/ 16nm PbTiO<sub>3</sub>/ SrRuO<sub>3</sub> capacitor on a DyScO<sub>3</sub> substrate.*

*(back) Real space atomic force micrograph of a thin film of 30nm PbTiO<sub>3</sub> on 30nm SrRuO<sub>3</sub> on DyScO<sub>3</sub> with crystallographic twins represented by vertical lines with different thicknesses. The chemists at the top form a periodic “up” and “down” pattern, while those at the bottom represent the periodic pattern of the “relaxed” thin film with their “long axis” alternately horizontal (in-plane) and vertical (out-of-plane). The solid state chemists are drawn by Dave Elderenbosch, the measurements have been performed by Ard Vlooswijk at (front) beamline W1, DESY, Hamburg and (back) the Zernike Institute for Advanced Materials, Groningen.*

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