

SUPPORTING INFORMATION

Orthorhombic undoped κ -Ga₂O₃ epitaxial thin films for sensitive, fast, and stable direct X-ray detectors

Marco Girolami^{*a}, Matteo Bosi^b, Valerio Serpente^a, Matteo Mastellone^a, Luca Seravalli^b, Sara Pettinato^c, Stefano Salvatori^c, Daniele M. Trucchi^a, Roberto Fornari^{d,b}

*a. Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche (ISM – CNR), Sede Secondaria di Montelibretti, Strada Provinciale 35D, 9, 00010 Montelibretti, Roma, Italy. *E-mail: marco.girolami@ism.cnr.it*

b. Istituto dei Materiali per l'Elettronica e il Magnetismo, Consiglio Nazionale delle Ricerche (IMEM – CNR), Parco Area delle Scienze 37/A, 43124 Parma, Italy.

c. Faculty of Engineering, Università degli Studi Niccolò Cusano, Via Don Carlo Gnocchi 3, 00166 Roma, Italy.

d. Department of Mathematical, Physical and Computer Sciences, Università di Parma, Parco Area delle Scienze 7/A, 43124 Parma, Italy.

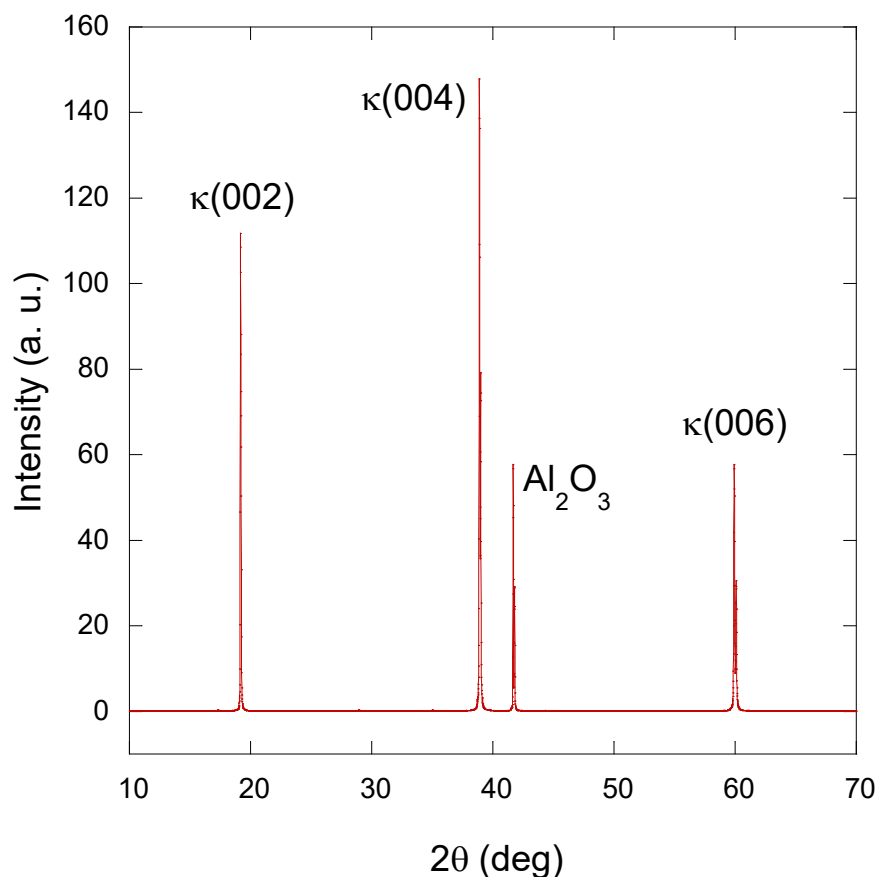


Fig. S1. 2 θ - θ scan of the κ -Ga₂O₃ film deposited epitaxially over a (0001) Al₂O₃ substrate.

Fig. S1 reports the XRD symmetric out-of-plane diffraction pattern obtained for the (001)-oriented κ -Ga₂O₃ film deposited on *c*-plane sapphire. As can be seen, the crystal structure is purely orthorhombic. For the XRD measurements, a Rigaku Smartlab XE diffractometer with CuK_α wavelength, equipped with cross beam optics unit to achieve parallel beam geometry, was used.