

# Structural characterization of Co-Re superlattices

[Journal of Applied Physics](#) (Volume 70, [Issue 12](#))

**Date of Publication:** Dec 1991

Page(s): 7370 - 7373

ISSN: 0021-8979

Digital Object Identifier: [10.1063/1.349731](#)

[Melo, L.V.](#)

INESC, R. Alves Redol 9-3, 1000 Lisboa, Portugal

IST, R. Rovisco Pais, 1000 Lisboa, Portugal

[Trindade, I.](#) ; [From, M.](#) ; [Freitas, P.P.](#) ; [Teixeira, N.](#) ; [da Silva, M.F.](#) ; [Soares, J.C.](#)

ABSTRACT: Co-Re superlattices were prepared with nominal periodicities of 65–67 Å and varying bilayer composition. The structural characterization was made by x-ray diffraction and Rutherford backscattering spectrometry (RBS). First, second, and third order satellites are observed in the x-ray diffractogram at  $2\theta$  values and with intensities close to those predicted by simulation. This confirms the coherence of the superlattice. RBS measurements combined with RUMP simulations give information on interface sharpness and the absolute thicknesses of the Co and Re layers. Discrepancies between the experimental and simulated diffractograms are found for Co thicknesses below 18 Å.

KEYWORDS: COBALT, CRYSTAL STRUCTURE, INTERFACE STRUCTURE, RBS, RHENIUM, SUPERLATTICES, X-RAY DIFFRACTION