



Contribution ID: 391

Type: Poster Presentation

## Deconvolution method for obtaining directly the original in-depth distribution of composition from the measured sputter depth profile

*Tuesday, 26 June 2018 15:00 (2 hours)*

It is shown that the original in-depth distribution of composition can be directly obtained by the deconvolution of measured depth profiling data using the MRI (Mixing-Roughness-Information) depth resolution function, as demonstrated for the case that the original depth-concentration distribution is either a smooth function or a square wave function. To overcome the ill-conditioned problem that is often experienced in the deconvolution procedure, the regularization method and the TV-Tikhonov algorithm are applied. The noise influences from measured data points on the deconvolution procedure are discussed quantitatively.

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**Session Classification:** Poster Session 1

**Track Classification:** Track A - Physics of Condensed Matter and Materials