ISO/TR 19319:2013-03 (E)

Surface chemical analysis - Fundamental approaches to determination of lateral resolution and sharpness in beam-based methods

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Termsanddefinitions 1

3 Symbols and abbreviated terms 4

4 Determination of lateral resolution and sharpness by imaging of stripe patterns 7
4.1 Theoretical background 7
4.2 Determination of the line spread function and the modulation transfer function by imaging of a narrow stripe 21
4.3 Determination of the edge spread function (ESF) by imaging a straight edge 41
4.4 Determination of lateral resolution by imaging of square-wave gratings 56

5 Physical factors affecting lateral resolution, analysis area and sample area viewed by the analyser in AES and XPS 96
5.1 General information 96
5.2 Lateral resolution of AES and XPS 97
5.3 Analysis area 104
5.4 Sample area viewed by the analyser 106

6 Measurements of analysis area and sample area viewed by the analyser in AES and XPS 107
6.1 General information 107
6.2 Analysis area 108
6.3 Sample area viewed by the analyser 109

Annex A (informative) Reduction of image period for 3-stripe gratings 110

Bibliography 113