

Title (en)
METHOD FOR THE IN-SITU DETERMINATION OF THE MATERIAL COMPOSITION OF OPTICALLY THIN LAYERS, ARRANGEMENTS FOR PERFORMANCE AND APPLICATIONS OF THE METHOD

Title (de)
VERFAHREN ZUR IN-SITU-BESTIMMUNG DER STOFFLICHEN ZUSAMMENSETZUNG VON OPTISCH DÜNNEN SCHICHTEN, ANORDNUNGEN ZUR DURCHFÜHRUNG UND ANWENDUNGEN DES VERFAHRENS

Title (fr)
PROCÉDÉ DE DÉTERMINATION IN-SITU DE LA COMPOSITION MATÉRIELLE DE COUCHES MINCES OPTIQUES, DISPOSITIONS POUR METTRE EN UVRE ET UTILISER CE PROCÉDÉ

Publication
EP 2179268 A2 20100428 (DE)

Application
EP 08784316 A 20080709

Priority
• DE 2008001130 W 20080709
• DE 102007034289 A 20070720

Abstract (en)
[origin: WO2009012748A2] Known methods are based on the measurement of the total reflection and analyze reflections of optical radiation in the case of smooth surfaces. Therefore, they require a normalization by measurement of the reference light or other measurement of the refractive indices. As a result, they cannot be used universally; in particular they cannot be used for process control of evaporation processes. The control methods known in this field operate only qualitatively on the basis of specific characteristics in the production process. For genuine quantitative regulation, however, it is essential that the components to be regulated (optical layer parameter) are also made measurable. The method according to the invention directly determines the material composition of optically thin layers and is based on an optical layer model that was derived from electromagnetic conduction theory with field resistances. The deposited layer is irradiated with preferably incoherent spectral light, preferably from a white light source, and the reflection intensities outside total reflection are detected by a spatially resolving optical detector, preferably CCD, and fed into the layer model. The characteristic functions of the layer model are fitted to the real process values and serve for numerically ascertaining the optical layer parameters from which the specific material composition can be derived.

IPC 8 full level
G01N 21/45 (2006.01); **G01B 11/06** (2006.01); **G01N 21/47** (2006.01)

CPC (source: EP US)
G01B 11/0625 (2013.01 - EP US); **G01B 11/0683** (2013.01 - EP US); **G01N 21/00** (2013.01 - EP US); **G01N 21/45** (2013.01 - EP US); **G01N 21/8422** (2013.01 - EP US)

Citation (search report)
See references of WO 2009012748A2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)
AL BA MK RS

DOCDB simple family (publication)
DE 102007034289 B3 20090129; EP 2179268 A2 20100428; JP 2010533874 A 20101028; US 2010291714 A1 20101118; US 8338194 B2 20121225; WO 2009012748 A2 20090129; WO 2009012748 A3 20090402

DOCDB simple family (application)
DE 102007034289 A 20070720; DE 2008001130 W 20080709; EP 08784316 A 20080709; JP 2010517266 A 20080709; US 66971408 A 20080709