

# X-ray and Neutron Scattering from Surfaces and Thin Films

Proceedings of the  
International Conference on Surface and Thin Film studies  
using Glancing-Incidence X-ray and Neutron Scattering

UNIVERSITÄTSBIBLIOTHEK  
HANNOVER  
TECHNISCHE  
INFORMATIONSBIBLIOTHEK

Marseille, France  
May 31, June 1-2, 1989

*Edited by* : M. Bienfait  
J.M. Gay

les éditions  
  
de physique

Avenue du Hoggar,  
Zone Industrielle de Courtabœuf,  
B.P. 112,  
F-91944 Les Ulis Cedex, France

UB/TIB Hannover 89  
119 885 301



CONTENTS



**LIQUID, LIQUID CRYSTALS, POLYMERS**

P.S. PERSHAN.- Liquid crystal surfaces..... C7-1

J. ALS-NIELSEN.- Lipid and simple liquid surfaces..... C7-21

L. BOSIO, R. CORTES, M. DENOZIERE and G. FOLCHER.- In-situ studies of electrochemical interfaces using X-ray radiation at grazing angles. Application to liquid mercury..... C7-23

D. JACQUEMAIN, S. GRAYER WOLF, F. LEVEILLER, M. LAHAV, L. LEISEROWITZ, M. DEUTSCH, K. KJAER and J. ALS-NIELSEN.- Crystalline self-aggregation and a pressure driven solid-solid phase transition in a fluorinated langmuir monolayer..... C7-29

J.J. BENATTAR, J. DAILLANT, L. BOSIO and L. LEGER.- Physical properties of ultra thin films studied by X-ray optical techniques : Langmuir-Blodgett multilayer structures, organic monolayers on water and the spreading of polymer micro-droplets..... C7-39

G. JANNINK, B. FARNOUX and J. des CLOIZEAUX.- Glancing incidence neutron scattering..... C7-67

E.M. LEE, E.A. SIMISTER, R.K. THOMAS and J. PENFOLD.- The structure of surfaces of surfactant solutions above the critical micelle concentration..... C7-75

**FLUORESCENCE**

M. BRUNEL and B. GILLES.- Grazing incidence X-ray fluorescence..... C7-85

**RECENT DEVELOPMENTS IN LARGE INSTRUMENTS**

J. PENFOLD.- Surface reflection studies at ISIS on the reflectometer, CRISP..... C7-99

M. BELAKHOVSKY.- ESRF : specificity and grazing techniques..... C7-107

**SURFACE STRUCTURE AND THIN SOLID FILMS**

M. SAUVAGE-SIMKIN.- Structure of clean III-V semiconductor surfaces. C7-119

- J. HARADA and N. KASHIWAGURA.- Surface morphology of mechanically and chemically polished semiconductor wafers..... C7-129
- R.A. COWLEY and C. LUCAS.- X-ray scattering measurements of silicon oxides on silicon..... C7-145
- J.B. KORTRIGHT, P.N. ROSS, O.R. MELROY, M.F. TONEY, G.L. BORGES and M.G. SAMANT.- Electrochemically adsorbed Pb on Ag (111) studied with grazing-incidence X-ray scattering..... C7-153
- P.H. FUOSS, D.W. KISKER, S. BRENNAN, J.L. KAHN, G. RENAUD and K.L. TOKUDA.- In situ X-ray scattering studies of chemical vapor deposition..... C7-159
- R.C. BUSCHERT, P.N. GIBSON, W. GISSLER, J. HAUPT and T.A. CRABB.- Glancing incidence X-ray studies of titanium nitride thin films using a new multipurpose laboratory spectrometer..... C7-169
- R. FEIDENHANS'L, F. GREY, J. BOHR, M. NIELSEN and R.L. JOHNSON.- Investigation of the Au/Si (111) surface structures by X-ray diffraction..... C7-175
- F. GREY, R. FEIDENHANS'L, M. NIELSEN and R.L. JOHNSON.- The relationship between the metastable and stable phases of Pb/Si (111)..... C7-181
- J.F. ANKNER, H. ZABEL, D.A. NEUMANN, C.F. MAJKRZAK, J.A. DURA and C.P. FLYNN.- Grazing-angle neutron diffraction..... C7-189
- M.J. GRUNDY, R.M. RICHARDSON, G. BEAMSON, W.J. BRENNAN, J. HOWARD and M. O'NEILL.- Neutron reflection from amorphous hydrogenated carbon films..... C7-197
- F. RIEUTORD.- Transmission measurements under glancing-incidence conditions..... C7-203
- M. VERGNAT, C. DUFOUR, A. BRUSON, S. HOUSSAINI, G. MARCHAL, Ph. MANGIN, J.J. RHYNE, R. ERWIN and C. VETTER.- Multilayers and low angle neutron scattering..... C7-207
- STANDING WAVES**
- A. AUTHIER.- X-ray standing waves..... C7-215
- H. HASHIZUME and O. SAKATA.- Dynamical X-ray diffraction from crystals under grazing-incidence conditions..... C7-225
- PHASE TRANSITIONS IN SOLID SURFACES AND THIN FILMS**
- S. DIETRICH.- Phase transitions at interfaces..... C7-233
- G.A. HELD, J.L. JORDAN-SWEET, P.M. HORN, A. MAK and R.J. BIRGENEAU.- Disorder transitions of metal surfaces..... C7-245
- H. DOSCH and J. PEISL.- Surface order-disorder transition in the solid solution  $\text{Cu}_3\text{Au}$ ..... C7-257
- I.K. ROBINSON.- Phase transitions in clean metal surfaces..... C7-267
- X-M. ZHU, I.K. ROBINSON, E. Vlieg, H. ZABEL, J.A. DURA and C.P. FLYNN.- Surface phase transition and kinetics of  $\text{Cu}_3\text{Au}$  (111)..... C7-283
- J.M. GAY, B. PLUIS, J.W.M. FRENKEN, S. GIERLOTKA, J.F. VAN DER VEEN, J.E. MACDONALD, A.A. WILLIAMS, N. PIGGINS and J. ALS-NIELSEN.- X-ray reflectivity study of surface melting on Pb (110)..... C7-289

R.G. VAN SILFHOUT, J.W.M. FRENKEN, J.F. VAN DER VEEN, S. FERRER,  
 A. JOHNSON, H. DERBYSHIRE, C. NORRIS and J.E. MACDONALD.- In situ  
 X-ray scattering studies of the deposition of Ge atoms on Ge (111).. C7-295

AUTHOR INDEX..... C7-301