

Bibliography on Applications of Scanning Probe Microscopy to Characterization of Carbon and Related Materials

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alphabetical order

301

3-D morphological characterization of carbon black aggregates using atomic force microscopy

W. Xu, T.W. Zerda, H. Raab, D. Goritz
Carbon, 35 (1997), 4, 471-474

88

A study of ultra-thin film ion beam deposited (IBD) hydrogenated amorphous carbon (a-C:H) using atomic force microscopy (AFM) and transmission electron microscopy (TEM)

J.A. McLaughlin, D. Magill, P.D. Maguire, R.W. Lamberton, J.F. Zhao
Diamond and Related Materials, 7 (1998), 7, 1054-1058

170

AFM and STM investigation of carbon nanotubes produced by high energy ion irradiation of graphite

K. Havancsak, H. Ryssel, L. Frey, J. Gyulai, S. Lipp, L.P. Biro, C. Lehrer, G.I. Mark
Nuclear Instruments and Methods in Physics Research Section B:
Beam Interactions with Materials and Atoms, 147 (1999), 1-4, 142-147

86

AFM and XPS studies of a homoepitaxial diamond (001) surface nitrided using 500-eV N²⁺ ion beam

I. Kusunoki, Y. Igari, S. Ishidzuka, T. Takami, T. Takaoka, M. Nishitani-Gamo, T. Ando
Diamond and Related Materials, 10 (2001), 9-10, 1676-1680

15

AFM detection of the mechanical resonances of coiled carbon nanotubes

A. Volodin, C. Van Haesendonck, R. Tarkiainen, M. Ahlskog, A. Fonseca, J.B. Nagy
Applied Physics A: Materials Science & Processing, 72 (2001), 7, S75-S78

92

AFM imaging of copper stripping/deposition processes in selected electrolytes on boron-doped diamond thin-film electrodes

J. Zak, M. Kolodziej-Sadlok
Electrochimica Acta, 45 (2000), 17, 2803 - 2813

84

AFM investigation of growth process of C₆₀ thin films on a KBr(001) surface

K. Narumi, H. Naramoto
Diamond and Related Materials, 10 (2001), 3-7, 980-983

173

AFM observations of DLC films prepared by the ECR sputtering method

E. Kamijo, T. Nakamura, Y. Tani
Nuclear Instruments and Methods in Physics Research Section B:
Beam Interactions with Materials and Atoms, 121 (1997), 1-4, 110-115

83

AFM study on the non-monotonic texture evolution of heteroepitaxially nucleated diamond films

R. Klarmann, M. Schreck, R. Hessmer, B. Stritzker
Diamond and Related Materials, 5 (1996), 3-5, 266-271

319

An STM and atomic force microscopy study of the effects of 1.8 MeV electron bombardment on the surface of graphite

Y. J. Chen, I. H. Wilson, J. B. Xu, L. Libin
Journal of Materials Science (full set), 33 (1998), 18, 4657-4663

55

Analysis of surface topography of ash particles obtained from sludge combustion using tapping-mode AFM

A. Ramesh, J.A. Kozinski
Applied Surface Science, 152 (1999), 3-4, 185-192

331

Application of phase contrast imaging atomic force microscopy to tribofilms on DLC coatings

H.-S. Ahn, S.A. Chizhik, A.M. Dubravin, V.P. Kazachenko, V.V. Popov
Wear, 249 (2001), 7, 617-625

811

Ar plasma treated and Al metallised polycarbonate: a XPS, mass spectroscopy and SFM study

H. Fuchs, C. Seidel, B. Gotsmann, H. Kopf, T. Vieth, K. Reihs
Applied Surface Science, 150 (1999), 1-4, 19-33

341

Atomic force microscopy and scanning tunneling microscopy studies of AlCl_3 -graphite intercalation compound

N. Ikemiya, E. Shimazu, S. Hara, H. Shioyama, Y. Sawada
Carbon, 34 (1996), 2, 277-279

343

Atomic force microscopy and transmission electron microscopy investigations of catalytic formed nanotubes in $\text{C}_{60}/\text{C}_{70}$ + Ni layers

R. Nowakowski, E. Starnawska, P. Dluzewski, H. Wronka, G. Dmowska, E. Czerwosz
Applied Surface Science, 141 (1999), 3-4, 350-356

348

Atomic force microscopy determination of the topography of fly-ash particles

C.M. Demanet
Applied Surface Science, 89 (1995), 1, 97-101

362

Atomic force microscopy investigation of electrochemically produced carbon nanotubes

J. Miklosi, P. Poczik, I. Sytchev, K. Papp, G. Kaptay, P. Nagy, E. Kalman
Applied Physics A: Materials Science & Processing, 72 (2001), 8, S189-S192

364

Atomic force microscopy investigation of the effects of annealing on amorphous carbon nitride films deposited by r.f. magnetron sputtering

F.L. Freire, R. Prioli, A.O. Caride, M.M. Lacerda, S.I. Zanette
Diamond and Related Materials, 8 (1999), 6, 993-995

368

Atomic force microscopy observation of the first stages of diamond growth on silicon

G. Sanchez, M.C. Polo, W.L. Wang, J. Esteve, J. Servat, P. Gorostiza
Diamond and Related Materials, 5 (1996), 6-8, 592-597

391

Atomic force microscopy studies of Bowen Basin coal macerals

G.A. Lawrie, I.R. Gentle, C. Fong, M. Glikson
Fuel, 76 (1997), 14-15, 1519-1526

400

Atomic force microscopy study of atomically flat (001) diamond surfaces treated with hydrogen plasma

K. Kajimura, T. Sekiguchi, K. Hayashi, H. Watanabe, S. Yamanaka, H. Okushi
Applied Surface Science, 125 (1998), 1, 120-124

402

Atomic force microscopy study of diamond-like atomic-scale composite films

F.H. Pollak, B. Dorfman
Thin Solid Films, 292 (1997), 1-2, 173-178

423

Atomic force microscopy with simultaneous a.c. conductivity contrast for the analysis of carbon fibre surfaces

H. Sturm, E. Schulz
Composites Part A: Applied Science and Manufacturing, 27 (1996), 9, 677-684

432

Atomic-scale friction on diamond(111) studied by ultra-high vacuum atomic force microscopy

R.J.A. van den Oetelaar, C.F.J. Flipse
Surface Science, 384 (1997), 1-3, L828-L835

89

Characterisation of ultra-thin DLC coatings by SEM/EDX, AFM and electrochemical techniques

S. Mailley, J.F. Zhao, D.M. Zhou, J. McLaughlin, E.T. McAdams, Z.H. Liu, P. Lemoine, P. Maguire
Diamond and Related Materials, 7 (1998), 7, 1059-1065

1014

Characteristics of low field-emission diamond films by scanning probe microscopy (SPM)

L. Zhang, T. Sakai, N. Sakuma, T. Ono
Diamond and Related Materials, 10 (2001), 3-7, 829-833

85

Characterization of AFM cantilevers coated with diamond-like carbon

M.C. Salvadori, M.C. Fritz, C. Carraro, R. Maboudian, O.R. Monteiro, I.G. Brown
Diamond and Related Materials, 10 (2001), 12, 2190-2194

53

Characterization of individual diamond crystals in micro diamond arrays using an AFM-based technique

Y. Sato, N. Nakagiri, H. Sugimura, M. Takaya, Y. Sakamoto, K. Ushiyama, O. Takai
Applied Surface Science, 144-145 (1999), 593-597

454

C-Ni amorphous multilayers studied by atomic force microscopy

M. Ulmeanu, A. Serghei, I.N. Mihailescu, P. Budau, M. Enachescu

Applied Surface Science, 165 (2000), 2-3, 109-115

457

Comparative study of the air and oxygen plasma oxidation of highly oriented pyrolytic graphite: a scanning tunneling and atomic force microscopy investigation

J.I. Paredes, A. Martinez-Alonso, J.M.D. Tascon

Carbon, 38 (2000), 8, 1183-1197

827

Crater formation due to grazing incidence C₆₀ cluster ion impacts on mica: A tapping-mode scanning force microscopy study

D.D.N. Barlo Daya, C.T. Reimann, P. Hakansson, B.U.R. Sundqvist, A. Brunelle, S. Della-Negra, Y. Le Beyec

Nuclear Instruments and Methods in Physics Research Section B:

Beam Interactions with Materials and Atoms, 124 (1997), 4, 484-489

472

Diamond thin film grown homoepitaxially on diamond (001) substrate by microwave plasma CVD method studied by reflection high-energy electron diffraction and atomic force microscopy

K. Suzuki, I. Sakaguchi, M. Nishitani-Gamo, T. Ando, I. Kusunoki, T. Takami

Surface Science, 440 (1999), 1-2, 103-115

1302

Diamond-like-carbon and molybdenum disulfide nanotribology studies using atomic force measurements

L.V. Santos, V.J. Trava-Airoldi, K. Iha, E.J. Corat, M.C. Salvadori

Diamond and Related Materials, 10 (2001), 3-7, 1049-1052

836

Dynamic scanning force microscopy at low temperatures on a van der Waals surface: graphite (0001)

A. Schwarz, R. Wiesendanger, W. Allers, U.D. Schwarz

Applied Surface Science, 140 (1999), 3-4, 247-252

483

Effect of atomic hydrogen on the surface topography of chemically vapour deposited diamond films: An atomic force microscopy study

E. Johansson, J.-O. Carlsson

Diamond and Related Materials, 4 (1995), 2, 155-163

1412

Elastic and Shear Moduli of Single-Walled Carbon Nanotube Ropes

J.-P. Salvetat, G. A. D. Briggs, J.-M. Bonard, R. R. Bacsá, A. J. Kulik, Th. Stöckli, N. A. Burnham and László Forró

Phys. Rev. Lett. 82 (1999), 5, 944-947

509

Friction tracks on diamond surfaces imaged by atomic force microscopy

W.J.P. Van Enckevort, M. Seal, M.S. Couto

Diamond and Related Materials, 6 (1997), 8, 975-982

1305

Germanium implantation into amorphous carbon films

L.G. Jacobsohn, F.L. Freire

Nuclear Instruments and Methods in Physics Research Section B:

Beam Interactions with Materials and Atoms, 175-177 (2001), 442-447

91

HFCVD diamond film nucleation and growth studies by in-situ optical technique and ex-situ AFM observations

R. Schauer, A.M. Bonnot, B. Weidner

Diamond and Related Materials, 7 (1998), 2-5, 205-208

59

Imaging of fullerene molecules on Si(111)-7x7 surface with NC-AFM

K. Kobayashi, H. Yamada, T. Horiuchi, K. Matsushige

Applied Surface Science, 157 (2000), 4, 228-232

264

In situ AFM study of the electrochemical deposition of polybithiophene from propylene carbonate solution

A. Fujishima, K. Hashimoto, L. Jiang, T. Iyoda, O.A. Semenikhin

Synthetic Metals, 110 (2000), 3, 195-201

1307

Infrared optical properties of amorphous hydrogenated carbon nitride film

J. Ju, Y. Xia, W. Zhang, L. Wang, D. Tang

Journal of Non-Crystalline Solids, 278 (2000), 1-3, 213-217

82

Intrinsic stress measured on ultra-thin amorphous carbon films deposited on AFM cantilevers

P. Lemoine, J.F. Zhao, A. Bell, P. Maguire, J. McLaughlin

Diamond and Related Materials, 10 (2001), 1, 94-98

566

Investigation of graphite composite anode surfaces by atomic force microscopy and related techniques

K.A. Hirasawa, K. Nishioka, T. Sato, S. Yamaguchi, S. Mori

Journal of Power Sources, 69 (1997), 1-2, 97-102

574

Investigations of C₆₀ molecules deposited on Si(111) by noncontact atomic force microscopy

K. Kobayashi, H. Yamada, T. Horiuchi, K. Matsushige

Applied Surface Science, 140 (1999), 3-4, 281-286

874

Material contrast by combined scanning tunneling and force microscopy imaging of single-walled carbon nanotubes

W. Clauss, M. Freitag, D.J. Bergeron, A.T. Johnson

Carbon, 38 (2000), 11-12, 1735-1739

592

Measurements of elastic properties of ultra-thin diamond-like carbon coatings using atomic force acoustic microscopy

S. Amelio, A.V. Goldade, U. Rabe, V. Scherer, B. Bhushan, W. Arnold

Thin Solid Films, 392 (2001), 1, 75-84

1602

Mechanical properties of d.c. magnetron-sputtered and pulsed vacuum arc deposited ultra-thin nitrogenated carbon coatings

A. Wienss, M. Neuhäuser, H.-H. Schneider, G. Persch-Schuy, J. Windeln, T. Witke, U. Hartmann,
Diamond Related Mater., 10 (2001), 3-7, 1024-1029

599

Mesostructure of polymer/carbon black composites observed by conductive probe atomic force microscopy

J. Ravier, F. Houze, F. Carmona, O. Schneegans, H. Saadaoui
Carbon, 39 (2001), 2, 314-318

601

Micro/nanotribology of ultra-thin hard amorphous carbon coatings using atomic force/friction force microscopy

B. Bhushan, S. Sundararajan
Wear, 225-229 (1999), 678-689

296

Microfriction and macrofriction of metal containing amorphous hydrocarbon hard coatings determined by AFM and pin-on-disk tests

Kirsten I. Schiffmann
Tribology Letters, 5 (1998), 1, 109-116

299

Microwear experiments on metal-containing amorphous hydrocarbon hard coatings by AFM: Wear mechanisms and models for the load and time dependence

K. Schiffmann
Wear, 216 (1998), 1, 27-34

620

Molecularly resolved observation of surface reconstruction of C₆₀ epitaxial films by atomic force microscopy

A. Fujishima, Y. Kim, K. Hashimoto, L. Jiang, T. Iyoda
Surface Science, 385 (1997), 2-3, 1945-1951

1451

Nanoindentation of diamond, graphite and fullerene films

A. Richter, R. Ries, R. Smith, M. Henkel, B. Wolf
Diamond and Related Materials, 9 (2000), 2, 170-184

1365

Nano-scale elastic property changes of ion-implanted graphite

H. Ogiso, Sh. Nakano, H. Tokumoto, K. Yamanaka
Nuclear Instruments and Methods in Physics Research B 175-177 (2001) 641-646

1038

Nanosopic investigations of diamond properties by scanning probe microscopy techniques

L.J. Balk, R. Heiderhoff, R.M. Cramer
Diamond and Related Materials, 8 (1999), 8-9, 1581-1586

1317

Nano-scratch and fretting wear study of DLC coatings for biomedical application

L.-y. Huang, K.-w. Xu, J. Lu, B. Guelorget, H. Chen
Diamond and Related Materials, 10 (2001), 8, 1448-1456

638

Nanotopographical changes on graphite tube surfaces in electrothermal atomic absorption spectrometry experiments as studied by atomic force microscopy

J. Habicht, T. Prohaska, G. Friedbacher, M. Grasserbauer, H.M. Ortner
Spectrochimica Acta Part B: Atomic Spectroscopy, 50 (1995), 8, 713-723

1040

Nanotribological characterization of hydrogenated carbon films by scanning probe microscopy

Z. Jiang, C.-J. Lu, D.B. Bogy, T. Miyamoto, C.S. Bhatia
Thin Solid Films, 258 (1995), 1-2, 75-81

1041

Nanotribology of amorphous hydrogenated carbon films using scanning probe microscopy

T.-H. Fang, C.-I. Weng, J.-G. Chang, C.-C. Hwang
Thin Solid Films, 396 (2001), 1-2, 167-173

884

Nanotribology: An UHV-SFM study on thin films of C₆₀ and AgBr

R. Luthi, E. Meyer, H. Haefke, L. Howald, W. Gutmannsbauer, M. Guggisberg, M. Bammerlin, H.-J. Guntherodt
Surface Science, 338 (1995), 1-3, 247-260

252

Noncontact UHV-AFM investigations of the growth of C₅₉N films on layered materials

Ch. Sommerhalter, B. Pietzak, M.Ch. Lux-Steiner, B. Nuber, U. Reuther, A. Hirsch
Surface Science, 433-435 (1999), 486-490

73

Observation of activated carbon fibres with SEM and AFM correlation with adsorption data in aqueous solution

B. Rousseau, P. Le Cloirec, C. Brasquet, H. Estrade-Szwarczkopf
Carbon, 38 (2000), 3, 407-422

90

Photoconductivity and AFM study of nitrogen doped a:DLC films

A. Inberg, L. Klibanov, A. Seidman, E. Ben-Jacob, N. Croitoru, L. Scheffer
Diamond and Related Materials, 7 (1998), 6, 807-810

671

Pretreatment of silicon substrates for CVD diamond deposition studied by atomic force microscopy

G. Friedbacher, E. Bouveresse, G. Fuchs, M. Grasserbauer, D. Schwarzbach, R. Haubner, B. Lux
Applied Surface Science, 84 (1995), 2, 133-143

87

RHEED and AFM studies of homoepitaxial diamond thin film on C(001) substrate produced by microwave plasma CVD

T. Takami, T. Ando, K. Suzuki, I. Sakaguchi, I. Kusunoki, M. Nishitani-Gamo
Diamond and Related Materials, 8 (1999), 2-5, 701-704

277

Roughness and critical exponents analysis of diamond films by AFM imaging

M.C. Salvadori, M.G. Silveira, M. Cattani
Thin Solid Films, 354 (1999), 1-2, 1-4

1054**Scanning probe microscopy of carbon nanotubes**

L. Forro, P. Jess, J.-P. Salvetat, U. Hubler, H.P. Lang, H.-J. Guntherodt
Carbon, 36 (1998), 5-6, 697-700

1060**Scanning probe microscopy of vacuum-arc-deposited metallic and diamond-like carbon thin films**

M.C. Salvadori, I.G. Brown, O.R. Monteiro, R.M. Galvao
Thin Solid Films, 325 (1998), 1-2, 19-23

1086**Scanning tunneling microscopy studies of carbon-oxygen reactions on highly oriented pyrolytic graphite**

H.Chang and A.J. Bard
J. Am. Chem. Soc. 113 (1991) 5588

1600**Scratching resistance of diamond-like carbon coatings in the sub-nanometer regime**

A. Wienss, G. Persch-Schuy, M. Vogelgesang, U. Hartmann
Appl. Phys. Lett. 75 (1999) 1077-1079.

695**Second harmonic generation and scanning tunnelling/atomic-force microscopy studies of tungsten-doped, amorphous-carbon films**

O.A. Aktsipetrov, V.F. Dorfman, E.D. Mishina, T.V. Murzina, Y.N. Moiseev, V.I. Panov, B.N. Pipkin
Thin Solid Films, 305 (1997), 1-2, 341-344

205**STM and AFM observations of damage produced by swift Ne and Kr ions in graphite**

K. Havancsak, L.P. Biro, J. Gyulai, A.J. Didyk
Radiation Measurements, 28 (1997), 1-6, 65-70

931**Study of mixed Langmuir-Blodgett films of hydrocarbon and fluorocarbon amphiphilic compounds by scanning surface potential microscopy and friction force microscopy**

K. Yagi, M. Fujihira
Applied Surface Science, 157 (2000), 4, 405-411

1601**Subnanometer scale tribological properties of nitrogen containing carbon coatings used in magnetic storage devices**

A. Wienss, G. Persch-Schuy, R. Hartmann, P. Joeris, U. Hartmann,
J. Vac. Sci. Technol. A18 (2000) 2023-2036

234**Surface topography of low energy He-ion-bombarded graphite by AFM: Temperature effects**

M. Kappel, M. Steidl, J. Biener, J. Kupperts
Surface Science, 387 (1997), 1-3, 11062-11067

941**Surface track formation on mica surfaces due to grazing incidence 20.2 MeV C₆₀ ions: a comparative study employing shadow-replica electron microscopy, tapping-mode and phase-imaging scanning force microscopy**

M. Bergqvist, S. Oscarsson, I.V. Vorobyova, J. Herbig, C.T. Reimann
Nuclear Instruments and Methods in Physics Research Section B:
Beam Interactions with Materials and Atoms, 149 **(1999)**, 1-2, 119-128

746

Surface treatments of vapor-grown carbon fibers produced on a substrate -

Part II: Atomic force microscopy

B. Nysten, J.L. Figueiredo, J.-P. Issi, P. Serp

Carbon, 37 **(1999)**, 11, 1809-1816

1372

The growth mechanisms and morphology of C₆₀ films on different substrates

A. Richter, R. Ries, K. Szulzewsky, B. Pietzak, R. Smith

Surface Science 394 **(1997)** 201-220

768

The structure of the carbon nanotube and its surface topography probed by transmission electron microscopy and atomic force microscopy

C.T. S., P. de Oliveira, J.J. Davis, M.L.H. Green, H.A.O. Hill

Chemical Physics Letters, 249 **(1996)**, 5-6, 413-422

1075

Ultrahigh vacuum scanning probe microscopy studies of carbon onions

S.M. Hou, C.G. Tao, G.M. Zhang, X.Y. Zhao, Z.Q. Xue, Z.J. Shi, Z.N. Gu

Physica E: Low-dimensional Systems and Nanostructures, 9 **(2001)**, 2, 300-304