

Title (en)
Polyelectrolyte films and their preparation

Title (de)
Polyelektrolytfolien und ihre Herstellung

Title (fr)
Films polyélectrolytes et leur préparation

Publication
EP 2557570 A1 20130213 (EN)

Application
EP 11176851 A 20110808

Priority
EP 11176851 A 20110808

Abstract (en)
Polyelectrolyte films can be prepared using a turbid solution of an admixture of a polyanion and a polycation in a solution of supporting electrolyte, and allowing a complex of the polyelectrolytes to be deposited on a substrate.

IPC 8 full level
H01B 1/06 (2006.01)

CPC (source: EP)
H01B 1/122 (2013.01)

Citation (applicant)

- G. DECHER, SCIENCE, vol. 277, 1997, pages 1232 - 1237
- ELBERT, D. L., HERBERT, C. B., HUBBELL, J. A.: "Thin polymer layers formed by polyelectrolyte multilayer techniques on biological surfaces", LANGMUIR, vol. 15, no. 16, 1999, pages 5355 - 5362, XP002495092, DOI: doi:10.1021/la9815749
- PICART, C., LAVALLE, P., HUBERT, P., CUISINIER, F. J. G., DECHER, G., SCHAAF, P., VOEGEL, J. C.: "Buildup mechanism for poly(L-lysine)/hyaluronic acid films onto a solid surface", LANGMUIR, vol. 17, no. 23, 2001, pages 7414 - 7424
- LAVALLE, P., GERGELY, C., CUISINIER, F. J. G., DECHER, G., SCHAAF, P., VOEGEL, J. C., PICART, C.: "Comparison of the structure of polyelectrolyte multilayer films exhibiting a linear and an exponential growth regime: An in situ atomic force microscopy study", MACROMOLECULES, vol. 35, no. 11, 2002, pages 4458 - 4465
- PICART, C., MUTTERER, J., RICHERT, L., LUO, Y., PRESTWICH, G. D., SCHAAF, P., VOEGEL, J. C., LAVALLE, P.: "Molecular basis for the explanation of the exponential growth of polyelectrolyte multilayers", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 99, no. 20, 2002, pages 12531 - 12535, XP002511912, DOI: doi:10.1073/PNAS.202486099
- LAUGEL, N., BETSCHA, C., WINTERHALTER, M., VOEGEL, J. C., SCHAAF, P., BALL, V.: "Relationship between the growth regime of polyelectrolyte multilayers and the polyanion/polycation complexation enthalpy", JOURNAL OF PHYSICAL CHEMISTRY B, vol. 110, no. 39, 2006, pages 19443 - 19449
- LAVALLE, PH., VOEGEL, J.-C., VAUTIER, D., SENGHER, B., SCHAAF, P., BALL, V.: "Dynamic aspects of films prepared by a sequential deposition of species: perspectives for smart and responsive materials. (review)", ADVANCED MATERIALS, vol. 23, 2011, pages 1191 - 1221, XP055012640, DOI: doi:10.1002/adma.201003309
- LAVALLE, P., PICART, C., MUTTERER, J., GERGELY, C., REISS, H., VOEGEL, J. C., SENGHER, B., SCHAAF, P.: "Modeling the buildup of polyelectrolyte multilayer films having exponential growth", JOURNAL OF PHYSICAL CHEMISTRY B, vol. 108, no. 2, 2004, pages 635 - 648
- P.A. CHIARELLI, M.S. JOHAL, D.J. HOLMES, J.L. CASSON, J.M. ROBINSON, H.L. P. WANG, LANGMUIR, vol. 18, 2002, pages 168
- J.B. SCHLENOFF, S.T. DUBAS, T. FARHAT, T., LANGMUIR, vol. 16, 2000, pages 9968
- SEO, J., LUTKENHAUS, J.L., KIM, J., HAMMOND, P.T., CHAR, K., LANGMUIR, vol. 24, 2008, pages 7995
- PORCEL, C., LAVALLE, PH., BALL, V., DECHER, G., SENGHER, B., VOEGEL, J.-C., SCHAAF, P.: "From exponential to linear growth in polyelectrolyte multilayers", LANGMUIR, vol. 22, 2006, pages 4376 - 4383
- V. ISUMRUDOV, E. KHARLAMPIEVA, S. SUKHISVILI, MACROMOLECULES, vol. 37, 2004, pages 8400
- MAJDED, H., VOEGEL, J.-C., CHASSEPOT, A., SENGHER, B., SCHAAF, P., BOULMEDAIS, F., BALL, V.: "Turbidity diagrams of polyanion/polycation complexes in solution as a tool to predict polyelectrolyte multilayer growth", J. COLLOID INTERF. SCI., vol. 346, 2010, pages 163 - 171, XP027039294
- PORCEL, C.P., SCHLENOFF, J.B.: "Compact polyelectrolyte complexes: "saloplastic" candidates for biomaterials", BIOMACROMOLECULES, vol. 10, 2009, pages 2968 - 2975
- H. BUNGENBERG DE JONG.: "Crystallisation-coacervation-flocculation In Colloid Science II", 1952, ELSEVIER
- HUBSCH, E., FLEITH, G., FATISSON, J., LABBE, P., VOEGEL, J. C., SCHAAF, P., BALL, V., LANGMUIR, vol. 21, 2005, pages 3664 - 3669
- ZOUARI, R., MICHEL, M., DI MARTINO, J., BALL, V., MATER. SCI. & ENG. C, vol. 30, 2010, pages 1291 - 1297

Citation (search report)

- [A] US 2004086649 A1 20040506 - CHIARELLI PETER A [US], et al
- [X] EP 0951914 A2 19991027 - KURARAY CO [JP]
- [X] US 5085775 A 19920204 - SWAMIKANNU A XAVIER [US]
- [XD] HAJARE MJAHED, JEAN-CLAUDE VOEGEL, ARMELLE CHASSEPOT, BERNARD SENGHER, PIERRE SCHAAF, FOUZIA BOULMEDAIS, VINCENT BALL: "Turbidity diagrams of polyanion/polycation complexes in solution as a potential tool to predict the occurrence of polyelectrolyte multilayer deposition", JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol. 346, 21 February 2010 (2010-02-21), pages 163 - 171, XP002667126

Cited by
CN107715811A; CN112062985A; US10897893B2; US11642674B2; US11716990B2

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 2557570 A1 20130213

