

CURRICULUM VITAE (July, 2016)

Prof. Dr. Nobuyoshi MIYAMOTO



Associate Professor

Department of Life, Environment and Materials Science
Faculty of Engineering
Fukuoka Institute of Technology

3-30-1, Wajiro-Higashi, Higashi-ku, Fukuoka 811-0295

e-mail : miyamoto@fit.ac.jp

website: <http://fit.ac.jp/~miyamoto>

phone : +81-92-606-3977

fax: +81-92-606-0728

Overview

Dr. Miyamoto obtained his Ph. D (Engineering) from Waseda University, Japan, in 2004 directed by Professor Kazuyuki Kuroda in the field of inorganic materials chemistry. He worked as a researcher at Tokyo University of Agriculture and Technology (2001-2003) and initiated the research of inorganic nanosheet liquid crystals with Professor Teruyuki Nakato. He then moved to Japan Atomic Energy Agency (2004-2007) and engaged in in-situ structural analyses of the nanosheet liquid crystals and the living anionic polymerization systems with small angle neutron/X-ray scattering in the research team directed by Professor Takeji Hashimoto. In 2007, he moved to Fukuoka Institute of Technology, Japan, and is currently an Associate Professor of the institute. He is managing the project research (2015-2019) as the Director of Materials and Energy Device Research Center of Fukuoka Institute of Technology (FIT-ME) funded by the Strategic Research Foundation Grant-Aided Project for Private University from MEXT, Japan. He is also the Chief Organizer of the West Japan Nanosheet Society since 2012. His research mainly focuses on the synthesis of advanced functional materials based on the inorganic nanosheets liquid crystals and nanosheet/polymer composites. The main research fields are inorganic chemistry, colloid chemistry, materials chemistry, and polymer chemistry.

Scientific Biography

2014-2015: Visiting Associate Professor, Kyushu University, Japan (secondary appointment)

2010-**present** : Associate Professor, Fukuoka Institute of Technology, Japan

2009-2010: Research Advisor, National Institute of Materials Science (NIMS), Japan (secondary appointment)

2007-2014: Lecturer, Fukuoka Institute of Technology

2004-2007: Postdoctoral Researcher, Japan Atomic Energy Agency (JAEA) (Advisor: Takeji Hashimoto, honorary professor of Kyoto University)

2003-2004: Researcher, Core Research for Evolutional Science and Technology (CREST), Japan Science and Technology Agency (JST), (Advisor: Professor Kazuyuki Kuroda at Waseda University)

2001-2003: Researcher, Precursory Research for Embryonic Science and Technology (PRESTO), Japan Science and Technology Agency (JST), (Advisor: Prof. Teruyuki Nakato at Tokyo University of Agriculture and Technology)

Education

2004: Ph.D. (Engineering), Waseda University, Japan

Dissertation title: Nanoscopic and Macroscopic Organization of Cationic Cyanine Dyes with Inorganic Layered Materials

Advisors: Professor Kazuyuki Kuroda

1999: M.A., Applied Chemistry, Faculty of Science and Engineering, Graduate School of Waseda University, Japan.

1997: B. A., Department of Applied Chemistry, Faculty of Science and Engineering, Waseda University, Japan.

Professional Societies

The Chemical Society of Japan (a regular member)

The Society of Polymer Science, Japan (a regular member)

The Japan Liquid Crystal Society (a regular member)

The Clay Science Society of Japan (a regular member)

The Molecular Robotics Research Group (a regular member)

The West-Japan Nanosheet Society (the Chief Organizer)

The Forum on Low-dimensional Photo-Functional Materials (a working committee member)

The organizing member of *International Union of Materials Research Societies - International Conference on Electronic Materials 2012 (IUMRS-ICEM2012)*

The organizing member of *International Union of Materials Research Societies - International Conference in Asia 2014 (IUMRS-ICA2014)*

Personal

Place of Birth: Miyazaki, Japan (July 1974)

Nationality: JAPAN

Sex: Male

Hobbies: Singing jazz vocals and classical choir, skiing, drinking wines

Research Areas (keywords)

inorganic layered material, inorganic nanosheet, liquid crystal, inorganic-organic nanohybrid material, clay mineral, polymer gel, self-assembly, supermolecular chemistry, hierarchical structure, soft material, colloid, bottom-up nano technology, anisotropic materials, functional materials, small angle X-ray/neutron/light scattering, photofunctional materials, organic actuator, chemical sensor, adsorbent, environmental catalyst, energy conversion and storage, electro rheological fluid, advanced hybrid plastic, drug delivery system, catalyst, photocatalyst, optical devices, display, molecular robotics, rubber materials, gel materials, biopolymer, DNA, tubline

Peer-Reviewed Original Papers

- (1) *J. Nanosci. Nanotechnol.*, **in press**, K. Shimasaki, T. Yamaki, S. Sawada, H. Hiroki, Y. Maekawa & N. Miyamoto "Synthesis of Anisotropic Poly(N-Isopropylacrylamide) / Inorganic-Nanosheets Composite Gels by Gamma-Radiation-Induced Polymerization and Crosslinking"
- (2) *Chem. Select*, **2016**, 4, 877 – 878, M. Mukai, J.-H. Do, N. Miyamoto & T. Arimura "A Belousov–Zhabotinsky Oscillator Driven by a Water-Soluble Metalloporphyrin"
- (3) *Mater. Lett.*, **2016**, 168, Y. Kamachi, B. P. Bastakoti, N. Miyamoto, T. Nakato & Y. Yamauchi "Thermo-Responsive Hydrogels Containing Mesoporous Silica toward Controlled and Sustainable Releases"

- (4) *Chem. Commun.*, **2016**, 52, 1594 - 1597, R. Guégan, K. Sueyoshi, S. Anraku, S. Yamamoto & N. Miyamoto "Sandwich Organization of Non-Ionic Surfactant Liquid Crystalline Phases as Induced by Large Inorganic K₄Nb₆O₁₇ Nanosheets"
- (5) *Clay Sci.*, **2015**, 19, 73-77, S. Yamamoto, Y. Ohseido, E. Yamada, K. Sonoda, H. Mita & N. Miyamoto "Cultivation of Cellulose-Producing Bacteria in the Nanosheet Liquid Crystal of Na-Fluorohectorite "
- (6) *Chem. Commun.*, **2015**, 51, 17068-17071, Y. Song, N. Iyi, T. Hoshide, T. C. Ozawa, Y. Ebina, R. Ma, N. Miyamoto & T. Sasaki "Accordion-Like Swelling of Layered Perovskite Crystals Via Massive Permeation of Aqueous Solutions into 2d Oxide Galleries"
- (7) *J. Am. Chem. Soc.*, **2015**, 137, 11558–11561, C. Li, B. Jiang, N. Miyamoto, J. H. Kim, V. Malgras & Y. Yamauchi "Surfactant-Directed Synthesis of Mesoporous Pd Films with Perpendicular Mesochannels as Efficient Electrocatalysts"
- (8) *Chem. Commun.*, **2015**, 51, 1230-1233, T. Kimura, M. Shintate & N. Miyamoto "In Situ Observation of the Evaporation-Induced Self-Assembling Process of Ps-B-Peo Diblock Copolymers for the Fabrication of Titania Films by Confocal Laser Scanning Microscopy"
- (9) *Angew Chem Int Ed*, **2015**, 54, 4222-4225, B. P. Bastakoti, Y. Li, M. Imura, N. Miyamoto, T. Nakato, T. Sasaki & Y. Yamauchi "Polymeric Micelle Assembly with Inorganic Nanosheets for Construction of Mesoporous Architectures with Crystallized Walls"
- (10) *Eur. J. Inorg. Chem.*, **2014**, 2014, 2773-2778, N. Suzuki, Y. Kamachi, K. Takai, S. Kiba, T. Kotani, Y. Sakka, N. Miyamoto & Y. Yamauchi "Effective Use of Mesoporous Silica Filler: Comparative Study on Thermal Stability and Transparency of Silicone Rubbers Loaded with Various Kinds of Silica Particles"
- (11) *RSC Advances*, **2014**, 4, 44837-44840, Y. Ohseido, M. Oono, K. Saruhashi, H. Watanabe & N. Miyamoto "A New Composite Thixotropic Hydrogel Composed of a Low-Molecular-Weight Hydrogelator and a Nanosheet"
- (12) *Chem. Eur. J.*, **2014**, 20, 14955-14958, N. Miyamoto, K. Shimasaki, K. Yamamoto, M. Shintate, Y. Kamachi, B. P. Bastakoti, N. Suzuki, R. Motokawa & Y. Yamauchi "Mesoporous Silica Particles as Topologically Crosslinking Fillers for Poly(N-Isopropylacrylamide) Hydrogels"
- (13) *Macromol. Rapid Commun.*, **2014**, 35, 1741-1746, T. Inadomi, S. Ikeda, Y. Okumura, H. Kikuchi & N. Miyamoto "Anomalous Thermo- and Photo-Responsive Anisotropic Deformation of Poly(N-Isopropylacrylamide) Gel Hybridized with Liquid Crystalline Inorganic Nanosheets Aligned by Electric Field"
- (14) *J. Am. Chem. Soc.*, **2014**, 136, 5491–5500, F. Geng, R. Ma, Y. Ebina, Y. Yamauchi, N. Miyamoto & T. Sasaki "Gigantic Swelling of Inorganic Layered Materials: A Bridge to Molecularly Thin Two-Dimensional Nanosheets"
- (15) *Chem. Commun.*, **2014**, 50, 9101-9104, B. P. Bastakoti, Y. Li, N. Miyamoto, H. Abe, J. Ye, P. Srinivasu & Y. Yamauchi "Polymeric Micelle Assembly for Direct Synthesis of Functionalized Mesoporous Silica with Fully Accessible Pt Nanoparticles toward Improved Co Oxidation Reaction"
- (16) *Chem. Commun.*, **2013**, 49, 1082-1084, N. Miyamoto, M. Shintate, S. Ikeda, Y. Hoshida, Y. Yamauchi, R. Motokawa & M. Annaka "Liquid Crystalline Inorganic Nanosheets for Facile Synthesis of Polymer Hydrogels with Anisotropies in Optical Property, Structure, Swelling/Deswelling, and Ion Transport/Fixation"
- (17) *Nature Commun.*, **2013**, 4, 1632, F. Geng, R. Ma, A. Nakamura, K. Akatsuka, Y. Ebina, Y. Yamauchi, N. Miyamoto, Y. Tateyama & T. Sasaki "Reversible, Instant, and Unusually Stable ~100-Fold Swelling of Inorganic Layered Materials"

- (18) *Small*, **2013**, 9, 1047-1051, H. Ataee-Esfahani, M. H. Jian Liu, N. Miyamoto, S. Tominaka, K. C. W. Wu & Y. Yamauchi "Mesoporous Metallic Cells: Design of Uniformly Sized Hollow Mesoporous Pt–Ru Particles with Tunable Shell Thicknesses"
- (19) *J. Nanosci. Nanotechnol.*, **2012**, 12, 4502-4507, M. B. Zakaria, N. Suzuki, K. Shimasaki, N. Miyamoto, Y.-T. Huang & Y. Yamauchi "Synthesis of Mesoporous Titania Nanoparticles with Anatase Frameworks and Investigation of Their Photocatalytic Performance"
- (20) *Phys. Rev. E.*, **2012**, 85, 011403, D. Yamaguchi, N. Miyamoto, T. Fujita, T. Nakato, S. Koizumi, N. Ohta, N. Yagi & T. Hashimoto "Aspect Ratio Dependent Phase Transitions and Concentration Fluctuations in Aqueous Colloidal Dispersions of Charged Plate-Like Particles"
- (21) *Chem. Mater.*, **2012**, 24, 1591–1598, H. Wang, L. Wang, T. Sato, Y. Sakamoto, S. Tominaka, K. Miyasaka, N. Miyamoto, Y. Nemoto, O. Terasaki & Y. Yamauchi "Synthesis of Mesoporous Pt Films with Tunable Pore Sizes from Aqueous Surfactant Solutions"
- (22) *Peptide Science*, **2012**, 347-348, M. Turuyama, H. Kanamaru, N. Miyamoto & H. Mita "Organic-Inorganic Complex of Polylysine and Fluorohectorite"
- (23) *Phys. Chem. Chem. Phys.*, **2012**, 14, 3400-3407, N. Suzuki, S. Kiba, Y. Kamachi, N. Miyamoto & Y. Yamauchi "Unusual Reinforcement of Silicone Rubber Compounds Containing Mesoporous Silica Particles as Inorganic Fillers"
- (24) *J. Mater. Chem.*, **2011**, 21, 5338-5344, N. Suzuki, S. Kiba, Y. Kamachi, N. Miyamoto & Y. Yamauchi "Mesoporous Silica as Smart Inorganic Fillers: Preparation of Robust Silicone Rubber with Low Thermal Expansion Property"
- (25) *J. Ceram. Soc. Jpn.*, **2011**, 119, 405-411, N. Suzuki, T. Athar, K. Shimasaki, N. Miyamoto & Y. Yamauchi "Synthesis of Mesoporous Nb₂O₅ with Crystalline Walls and Investigation of Their Photocatalytic Activity"
- (26) *Bull. Chem. Soc. Jpn.*, **2011**, 84, 812–817, B. Suzuki, X. Jiang, L. Radhakrishnan, K. Takai, K. Shimasaki, Y.-T. Huang, N. Miyamoto & Y. Yamauchi "Hybridization of Photoactive Titania Nanoparticles with Mesoporous Silica Nanoparticles and Investigation of Their Photocatalytic Activity"
- (27) *J. Nanosci. Nanotechnol.*, **2011**, 11, 3256-3264, K. Shimasaki, N. Suzuki, N. Miyamoto & Y. Yamauchi "Aerosol-Assisted Synthesis of Nanoporous Silica/Titania Nanoparticles Composites and Investigation of Their Photocatalytic Properties"
- (28) *Chem. Asian J.*, **2011**, 6, 2936-2939, N. Miyamoto, S. Yamamoto, K. Shimasaki, K. Harada & Y. Yamauchi "Exfoliated Nanosheets of Layered Perovskite KCa₂Nb₃O₁₀ as an Inorganic Liquid Crystal"
- (29) *Chem. Eur. J.*, **2011**, 17, 4005–4011, T. Kimura, Y. Yamauchi & N. Miyamoto "Highly Photoactive Porous Anatase Films Derived by the Deformation of 3-D Mesosstructures"
- (30) *Macromolecules*, **2010**, 43, 2948-2959, Y. Zhao, N. Miyamoto, S. Koizumi & T. Hashimoto "Combined Sans, Sec, Nmr, and Uv-Vis Studies of Simultaneous Living Anionic Copolymerization Process in a Concentrated Solution: Elucidation of Building-up Processes of Molecules and Their Self-Assemblies"
- (31) *Chem. Commun.*, **2010**, 46, 4166-4168, N. Miyamoto, H. Iijima, H. Ohkubo & Y. Yamauchi "Liquid Crystal Phases in the Aqueous Colloids of Size-Controlled Fluorinated Layered Clay Mineral Nanosheets"
- (32) *Chem. Eur. J.*, **2010**, 16, 12069-12073, T. Kimura, Y. Yamauchi & N. Miyamoto "Condensation and Crystallinity Controlled Synthesis of Titanium Oxide Films with Mesospaces Showing Dramatic Photocatalytic Performance"
- (33) *Macromolecules*, **2009**, 42, 1739–1748, Y. Zhao, H. Tanaka, N. Miyamoto, S. Koizumi & T. Hashimoto "Combined Sans, Sec, Nmr, and Uv-Vis Spectroscopic Studies of Simultaneous Living Anionic

Copolymerization Process: Simultaneous Elucidation of Propagating Living Chains at Three Different Length Scales"

- (34) *J. Phys. Chem. B*, **2009**, *113*, 1323-1331, T. Nakato, Y. Yamada & N. Miyamoto "Photoinduced Charge Separation in a Colloidal System of Exfoliated Layered Semiconductor Controlled by Coexisting Aluminosilicate Clay"
- (35) *Chem. Lett.*, **2009**, *38*, 916-917, T. Kimura, D. Nakashima & N. Miyamoto "Lamellar Mesostructured Aluminum Organophosphonate with Unique Crystalline Framework"
- (36) *Chem. Asian J.*, **2009**, *4*, 1486-1492, T. Kimura, N. Miyamoto, X. Meng, T. Ohji & K. Kato "Rapid Fabrication of Mesoporous Titania Films with Controlled Macroporosity to Improve Photocatalytic Property"
- (37) *J. Appl. Cryst.*, **2007**, *40*, s101-s105, D. Yamaguchi, N. Miyamoto, S. Koizumi, T. Nakato & T. Hashimoto "Hierarchical Structure of Niobate Nanosheets in Aqueous Solution"
- (38) *Angew. Chem. Int. Ed.*, **2007**, *46*, 4123-4127, N. Miyamoto, Y. Yamada, S. Koizumi & T. Nakato "Extremely Stable Photoinduced Charge Separation in a Colloidal System Composed of Semiconducting Niobate and Clay Nanosheets"
- (39) *J. Colloid Interface Sci.*, **2007**, *313*, 369-373, N. Miyamoto & K. Kuroda "Preparation of Porous Solids Composed of Layered Niobate Walls from Colloidal Mixtures of Niobate Nanosheets and Polystyrene Spheres"
- (40) *J. Appl. Cryst.*, **2007**, *40*, s568-s572, N. Miyamoto, Y. Inoue, S. Koizumi & T. Hashimoto "Living Anionic Polymerization of Methyl Methacrylate Controlled by Metal-Free Phosphazene Catalyst as Observed by Small-Angle Neutron Scattering, Gel-Permeation Chromatography and Uv-Visible Spectroscopy"
- (41) *Physica B*, **2006**, *385-386*, 742-744, H. Tanaka, K. Yamauchi, H. Hasegawa, N. Miyamoto, S. Koizumi & T. Hashimoto "In-Situ and Real-Time Small-Angle Neutron Scattering Studies of Living Anionic Polymerization Process and Polymerization-Induced Self-Assembly of Block Copolymers"
- (42) *Physica B*, **2006**, *385-386*, 752-755, N. Miyamoto, K. Yamauchi, H. Hasegawa, T. Hashimoto & S. Koizumi "Aggregation Behavior of Polyisoprene Chain Ends During Living Anionic Polymerization as Investigated by Time-Resolved Small-Angle Neutron Scattering"
- (43) *Chem. Commun.*, **2004**, 78-79, T. Nakato, N. Miyamoto & A. Harada "Stable Liquid Crystalline Phases of Colloidally Dispersed Exfoliated Layered Niobates"
- (44) *J. Phys. Chem. B*, **2004**, *108*, 6152-6159, N. Miyamoto & T. Nakato "Liquid Crystalline Nanosheet Colloids with Controlled Particle Size Obtained by Exfoliating Single Crystal of Layered Niobate $K_4Nb_6O_{17}$ "
- (45) *J. Phys. Chem. B*, **2004**, *108*, 4268-4274, N. Miyamoto, K. Kuroda & M. Ogawa "Visible Light Induced Electron Transfer and Long-Lived Charge Separation in Cyanine Dye/Layered Titanate Intercalation Compounds"
- (46) *J. Mater. Chem.*, **2004**, *14*, 165-170, N. Miyamoto, K. Kuroda & M. Ogawa "Exfoliation and Film Preparation of a Layered Titanate, $Na_2Ti_3O_7$, and Intercalation of Pseudoisocyanine Dye"
- (47) *Appl. Clay Sci.*, **2003**, *22*, 179-185, M. Ogawa, T. Ishii, N. Miyamoto & K. Kuroda "Intercalation of a Cationic Azobenzene into Montmorillonite"
- (48) *Langmuir*, **2003**, *19*, 3157-3163, T. Nakato, N. Miyamoto, A. Harada & H. Ushiki "Sol-Gel Transition of Niobium Oxide Nanosheet Colloids: A Hierarchical Aspect of a Novel Macroscopic Property Appears in Colloidally Dispersed States of Layered Niobate $K_4Nb_6O_{17}$ "

- (49) *Langmuir*, **2003**, *19*, 8057-8064, N. Miyamoto & T. Nakato "Liquid Crystalline Colloidal System Obtained by Mixing Niobate and Aluminosilicate Nanosheets: A Spectroscopic Study Using a Probe Dye"
- (50) *J. Mater. Chem.*, **2002**, *12*, 1245-1246, T. Nakato & N. Miyamoto "Sol-Gel Transition of Nanosheet Colloids of Layered Niobate $K_4Nb_6O_{17}$ "
- (51) *Chem. Commun.*, **2002**, 2378-2379, N. Miyamoto, H. Yamamoto, R. Kaito & K. Kuroda "Formation of Extraordinarily Large Nanosheets from $K_4Nb_6O_{17}$ Crystals"
- (52) *Adv. Mater.*, **2002**, *14*, 1267-1270, N. Miyamoto & T. Nakato "Liquid Crystalline Nature of $K_4Nb_6O_{17}$ Nanosheet Sols and Their Macroscopic Alignment"
- (53) *J. Mater. Chem.*, **2002**, *12*, 3463-3468, R. Kaito, N. Miyamoto, K. Kuroda & M. Ogawa "Intercalation of a Cationic Phthalocyanines into Layered Titanates and Control of the Microstructures"
- (54) *Adv. Mater.*, **2001**, *13*, 1107-1109, M. Ogawa, T. Ishii, N. Miyamoto & K. Kuroda "Photocontrol of the Basal Spacing of Azobenzene-Magadiite Intercalation Compound"
- (55) *J. Am. Chem. Soc.*, **2001**, *123*, 6949-6950, N. Miyamoto, K. Kuroda & M. Ogawa "Uni-Directional Orientation of Cyanine Dye Aggregates on a $K_4Nb_6O_{17}$ Single Crystal : Toward Novel Supramolecular Assemblies with Three-Dimensional Anisotropy"
- (56) *Appl. Clay Sci.*, **2001**, *19*, 39-46, N. Miyamoto, K. Kuroda & M. Ogawa "Intercalation of a Cationic Cyanine Dye into the Layered Silicate Magadiite"
- (57) *Mol. Cryst. Liq. Cryst.*, **2000**, *341*, 259-264, N. Miyamoto, K. Kuroda & M. Ogawa "Aggregation of a Cationic Cyanine Dye Intercalated in the Interlayer Space of a Layered Titanate, $Na_2Ti_3O_7$ "
- (58) *Appl. Clay Sci.*, **2000**, *16*, 161-170, N. Miyamoto, R. Kawai, K. Kuroda & M. Ogawa "Adsorption and Aggregation of a Cationic Cyanine Dye on Layered Clay Minerals"

Reviews

- (1) In *Supramolecular Nanoarchitectonics* (**in press**), N. Miyamoto & S. Yamamoto. Eds Katsuhiko Ariga & Masakazu Aono), "Functional Layered Compounds for Nanoarchitectonics".
- (2) In *Inorganic Nanosheets and Nanosheet-Based Materials* (Springer, **in press**), N. Miyamoto & T. Nakato. "Colloidal nanosheets".
- (3) In *Nanospace materials handbook* (NTS Inc., **2016**), T. Nakato & N. Miyamoto. (Ed Katsuhiko Ariga), "Nanosheet liquid crystals and anisotropic gels (in Japanese)".
- (4) *Kobunshi Ronbunshu*, **2016**, *73*, 262-280, N. Miyamoto & S. Yamamoto "Inorganic Nanosheet Liquid Crystals: Self-Assembled Structures in Dispersions of Two-Dimensional Inorganic Polymers (in Japanese)"
- (5) *Nanosci. Nanotechnol. Lett.*, **2016**, *8*, 355-359, V. Malgras, Y. Kamachi, T. Nakato, Y. Yamauchi & N. Miyamoto "Recent Developments in Hybrid Hydrogels Containing Inorganic Nanomaterials"
- (6) *Israel J. Chem.*, **2012**, *52*, 881-894, N. Miyamoto & T. Nakato "Liquid Crystalline Inorganic Nanosheet Colloids Derived From Layered Materials"
- (7) *Colloid & Interface Communication*, **2011**, *36*, 13-15, N. Miyamoto "Clay Nanosheet Colloids as Lyotropic Liquid Crystals (in Japanese)"
- (8) *Kagaku (Kagaku-Dojin)*, **2011**, *66*, 70-71, N. Miyamoto "Nanosheet Liquid Crystal—soft functional materials with anisotropy (in Japanese)"

- (9) *Ekisho*, **2010**, 14, 108-117, T. Nakato & N. Miyamoto "Liquid Crystals of Colloidally Dispersed Inorganic Nanosheets and Their Functions (in Japanese)"
- (10) In *Recent Trend of Functional Clay Materials* (CMC Publishing, Co., Ltd., **2010**) Ch. 12, 299-314, T. Nakato & N. Miyamoto. (Ed Makoto Ogawa), "Liquid crystals and gels of clay colloids (in Japanese)".
- (11) *Materials*, **2009**, 2, 1734-1761, T. Nakato & N. Miyamoto "Liquid crystalline behavior and related properties of colloidal systems of inorganic oxide nanosheets"

Patents

- (1) "Liquid crystalline layered niobium oxide nanosheet and its manufacturing process of" Teruyuki Nakato and Nobuyoshi Miyamoto, Japan Patent No. 2002-273477, (2002)
- (2) "Gels of exfoliated layers of layered niobium oxide and its manufacturing process" Teruyuki Nakato and Nobuyoshi Miyamoto, Japan Patent No. 2002-035036, (2002)

Research Grants

- (1) Grant-in-Aid for International Research from the Ministry of Education, Culture, Sports, Science and Technology, Japan. "Manipulation of inorganic nanosheets by the molecular information of DNA" Nobuyoshi Miyamoto (principal investigator), **11,300,000 Japanese yen**, (**2016-2018**)
- (2) Cooperative Research Program of Network Joint Research Center for Materials and Devices, "Development of Optical Devices Based on Liquid Crystalline Inorganic Nanosheets" Nobuyoshi Miyamoto & Yasushi Okumura (principal investigator), **4,000,000 Japanese yen**, (**2015**)
- (3) Strategic Research Foundation Grant-Aided Project for Private University from MEXT, JAPAN) "Development of Revolutionary Energy Devices: Fabrication and Mounting of Dielectric Nanocomposite Materials" Nobuyoshi Miyamoto (principal investigator), **200,000,000 Japanese yen**, (**2015-2019**)
- (4) Grant-in-Aid for Scientific Research (C) from the Ministry of Education, Culture, Sports, Science and Technology, Japan. "Manipulation of inorganic nanosheets by the molecular information of DNA" Nobuyoshi Miyamoto (principal investigator), **3,800,000 Japanese yen**, (**2015-2017**)
- (5) The Canon Foundation "Development of functional inorganic nanosheet liquid crystals based on layered perovskites", Nobuyoshi Miyamoto (principal investigator), **18,000,000 Japanese yen** (**2013-2015**)
- (6) Cooperative Research Program of Network Joint Research Center for Materials and Devices, "Electric-Field Response of Nanosheet Liquid Crystals: The Effects of Solvent Permittivity and Nanosheet Thickness" Nobuyoshi Miyamoto (principal investigator), **150,000 Japanese yen**, (**2013**)
- (7) Grant-in-Aid for Scientific Research (No. 24104005) on Innovative Areas of "Molecular Robotics" (No. 2403) from the Ministry of Education, Culture, Sports, Science, and Technology, Japan. **ca. 40,000,000 Japanese yen** (**2012-2016**).
- (8) Seki Memorial Foundation "Fabrication of functional materials by hybridization of inorganic nanosheet liquid crystals with organic liquid crystals", Nobuyoshi Miyamoto (principal investigator), **800,000 Japanese yen** (**2010**)
- (9) The Kao Foundation for Arts and Sciences, "Responses of Clay Mineral Nanosheet Liquid Crystals to Temperature and Electric Field", Nobuyoshi Miyamoto (principal investigator), **1,000,000 Japanese yen** (**2010**)
- (10) National, Public, and Private Universities' Consortium-Fukuoka, "Development of hybrid gels of inorganic nanosheets liquid crystal and polymers for environmental sensing and cleanup" Nobuyoshi Miyamoto (principal investigator) and Masahiko Annaka, **2,000,000 Japanese yen** (**2009**)
- (11) Nippon Sheet Glass Foundation for Materials Science and Engineering "Synthesis of novel liquid crystal materials by exfoliation of layered silicates" Nobuyoshi Miyamoto (principal investigator), **1,000,000**

Japanese yen (2008)

- (12) Reimei Research Program of Japan Atomic Energy Agency, “Photofunctions and structural analysis of semiconductor nanosheet colloids by small angle neutron scattering” Nobuyoshi Miyamoto (principal investigator) , 6,000,000 Japanese yen (2008-2009)
- (13) Grant-in-Aid for Young Scientists (B) from the Ministry of Education, Culture, Sports, Science and Technology, Japan. “Synthesis of functional materials based on inorganic nanosheet-polymer hybrid with an entropy-driven mesostructures” Nobuyoshi Miyamoto (principal investigator), 3,500,000 Japanese yen, (2007-2008)
- (14) Grant-in-Aid for Young Scientists (B) from the Ministry of Education, Culture, Sports, Science and Technology, Japan. ”Design of new living anionic polymerization system by utilizing small-angle neutron scattering” Nobuyoshi Miyamoto (principal investigator) , 3,700,000 Japanese yen (2005-2006)

Awards

- (1) Incentive Award of the Clay Science Society of Japan (2014)
- (2) Award for Encouragement of Research in Materials Science, *International Union of Materials Research Societies, International Conference in Asia (IUMRS-ICA 2008)*

Teaching

Polymer Chemistry I (2011-present)
Colloid Chemistry (2011-present)
Introduction to the Scientific Experiments (2013-present)
Seminar for Life, Environment, and Materials Science (2007-present)
Basic Experiments of Functional Materials Engineering (2007-present)
Basic Experiments of Chemistry (2007-present)
Computer Programming (2007-2012)
Organic Chemistry (2007-2010)
Materials Engineering for Environment (2007-2010)
Special Lecture on Instrumentation for Materials and Environmental Science (2008-present)
Special Lecture on Materials Science (2008-present)
Special Lecture on Scientific English (2011)