

LIST OF PUBLICATIONS
(Scientific Papers)
Masakazu AONO

441. **Quantum transport localization through graphene**
S. Srivastava, H. Kino, S. Nakaharai, E. Verveniotes, Y. Okawa, S. Ogawa, C. Joachim, and M. Aono
Nanotechnology **28** (2017) 035703-1
440. **Highly Reproducible and Regulated Conductance Quantization in a Polymer-Based Atomic Switch**
K. Krishnan, M. Manoharan, T. Tsuruoka, H. Mizuta, and M. Aono
Adv. Funct. Mater. **27** (2017) 1605104-1
439. **Quantized conductance operation near a single-atom point contact in a polymer-based atomic switch**
K. Krishnan, M. Manoharan, T. Tsuruoka, H. Mizuta, and M. Aono
Jpn. J. Appl. Phys. **56** (2017) 06GF02-1
438. **Self-assembling diacetylene molecules on atomically flat insulators**
E. Verveniotes, Y. Okawa, M. V. Makarova, Y. Koide, Jiangwei Liu, B. Šmíd, K. Watanabe, T. Taniguchi, K. Komatsu, T. Minari, Xuying Liu, C. Joachim, and M. Aono
Phys. Chem. Chem. Phys. **18** (2016) 31600
437. **Self-assembled diacetylene molecular wire polymerization on an insulating hexagonal boron nitride (0001) surface**
M. V. Makarova, Y. Okawa, E. Verveniotes, K. Watanabe, T. Taniguchi, C. Joachim, and M. Aono
Nanotechnology **27** (2016) 395303-1
436. **Facile fabrication of silk protein sericin-mediated hierarchical hydroxyapatite-based bio-hybrid architectures: excellent adsorption of toxic heavy metals and hazardous dye from wastewater**
P. Koley, M. Sakurai, T. Takei, and M. Aono
RSC Advances **6** (2016) 86607
435. **Multiple-probe scanning probe microscopes for nanoarchitectonic materials science**
T. Nakayama, Y. Shingaya, and M. Aono
Jpn. J. Appl. Phys. **55** (2016) 1102A7-1
434. **Ultrahigh-density data storage into thin films of fullerene molecules**
M. Nakaya, M. Aono, and T. Nakayama
Jpn. J. Appl. Phys. **55** (2016) 1102B4-1
433. **Nanoionic devices: Interface nanoarchitectonics for physical property tuning and enhancement**
T. Tsuchiya, K. Terabe, R. Yang, and M. Aono
Jpn. J. Appl. Phys. **55** (2016) 1102A4-1

432. **Nanoarchitectonics**
K. Ariga and M. Aono
Jpn. J. Appl. Phys. **55** (2016) 1102A6-1
431. **Atomic Switches**
K. Terabe, T. Tsuruoka, T. Hasegawa, A. Nayak, T. Ohno, T. Nakayama, and M. Aono
Resistive Switching (2016) 515
430. **On-surface synthesis of single conjugated polymer chains for single-molecule devices**
Y. Okawa, M. Swapan, M. Marina Vadimovna, E. Verveniotis, and M. Aono
On-surface synthesis (2016) 167-179
429. **The Way to Nanoarchitectonics and the Way of Nanoarchitectonics**
M. Aono and K. Ariga
Adv. Mater. **28** (2016) 989-992
428. **Mechanism for Conducting Filament Growth in Self-Assembled Polymer Thin Films for Redox-Based Atomic Switches**
K. Krishnan, T. Tsuruoka, C.R. Mannequin, and M. Aono
Adv. Mater. **28** (2016) 640-648
427. **Controlled Fabrication of Silk Protein Sericin Mediated Hierarchical Hybrid Flowers and Their Excellent Adsorption Capability of Heavy Metal Ions of Pb(II) Cd(II) and Hg(II)**
P. Koley, M. Sakurai, and M. Aono
ACS Appl. Mater. Interfaces **8** (2016) 2380-2392.
426. **Direct observation of anodic dissolution and filament growth behavior in polyethylene-oxide-based atomic switch structures**
K. Krishnan, T. Tsuruoka, and M. Aono
Jpn. J. Appl. Phys **55** (2016) 06GK02-1
425. **Decision Maker based on Atomic Switches**
S. Kim, T. Tsuruoka, T. Hasegawa, M. Aono, K. Terabe, and M. Aono
AIMS MATERIALS SCIENCE **3** (2016) 245-259
424. **In Situ Tuning of Magnetization and Magnetoresistance in Fe₃O₄ Thin Film Achieved with All-Solid-State Redox Device**
T. Tsuchiya, K. Terabe, M. Ochi, T. Higuchi, M. Osada, Y. Yamashita, S. Ueda, and M. Aono
ACS Nano **10** (2016) 1655-1661
423. **Humidity effects on the redox reactions and ionic transport in a Cu/Ta₂O₅/Pt atomic switch structure**
T. Tsuruoka, I. Valov, C.R. Mannequin, T. Hasegawa, R. Waser, and M. Aono
Jpn. J. Appl. Phys **55** (2016) 06GJ09-1
422. **Composition of thin Ta₂O₅ films deposited by different methods and the effect of humidity on their resistive switching behavior**
C.R. Mannequin, T. Tsuruoka, T. Hasegawa, and M. Aono
Jpn. J. Appl. Phys **55** (2016) 06GG08-1
421. **Nanoionic devices enabling a multitude of new features**
K. Terabe, T. Tsuchiya, R. Yang, and M. Aono
Nanoscale **8** (2016) 13873-13879

420. **Identification and roles of nonstoichiometric oxygen in amorphous Ta₂O₅ thin films deposited by electron beam and sputtering processes**
C.R. Mannequin, T. Tsuruoka, T. Hasegawa, and M. Aono
Appl. Surf. Sci. **385** (2016) 426-435
419. **Kinetic factors determining conducting filament formation in solid polymer electrolyte based planar devices**
K. Krishnan, M. Aono, and T. Tsuruoka
Nanoscale **8** (2016) 13976-13984
418. **Redox reactions at CuAg/Ta₂O₅ interfaces and the effects of Ta₂O₅ film density on the forming process in atomic switch structures**
T. Tsuruoka, I. Valov., S. Tappertzhofen, J. van den Hurk, T. Hasegawa, R. Waser, and M. Aono
Adv. Funct. Mater. **25** (2015) 6374-6381
417. **Tunable morphology from 2D to 3D in the formation of hierarchical architectures from a self-assembling dipeptide: thermal-induced morphological transition to 1D nanostructures**
P. Koley, M. Sakurai, and M. Aono
J. Mater. Sci. **50** (2015) 3139-3148
416. **Dynamic moderation of an electric field using a SiO₂ switching layer in TaOx-based ReRAM**
Q. Wang, Y. Itoh, T. Tsuruoka, S. Otsuka, T. Shimizu, S. Shinguhara, T. Hasegawa, and M. Aono
Phys. Status Solidi-Rapid Res. Lett. **9** (2015) 166-170
415. **Position detection and observation of a conducting filament hidden under a top electrode in a Ta₂O₅-based atomic switch**
A. Nayak, Q. Wang, Y. Itoh, T. Tsuruoka, T. Hasegawa, L. Boodhoo, H. Mizuta, and M. Aono
Nanotechnology **26** (2015) 145702-1
414. **Plasmon-mediated photocatalytic activity of wet-chemically prepared ZnO nanowire arrays**
D.T. Dao, G. Han, N. Arai, T. Nabatame, Y. Wada, C. Hoang, M. Aono, and T. Nagao
Phys. Chem. Chem. Phys. **17** (2015) 7395-7403
413. **Ultrahigh-Gain Single SnO₂ Microrod Photoconductor on Flexible Substrate with Fast Recovery Speed**
KW Liu, M. Sakurai, M. Aono, and D. Shen
Adv. Funct. Mater. **25** (2015) 3157-3163
412. **Effects of temperature and ambient pressure on the resistive switching behavior of Polymer-based atomic switches**
S. R. Mohapatra, T. Tsuruoka, K. Krishnan, T. Hasegawa, and M. Aono
J. Mater. Chem. C **3** (2015) 5715-5720
411. **Effect of Ionic Conductivity on Response Speed of SrTiO₃-based All-Solid-State Electric-Double-Layer Transistor**
T. Tsuchiya, M. Ochi, T. Higuchi, K. Terabe, and M. Aono
ACS Appl. Mater. Interfaces **7**(2015)12254-12260
410. **Commentary: Nanoarchitectoncs – Think about NANO again**
K. Ariga, Y. Yamauchi, and M. Aono
APL Materials **3** (2015) 061001

409. **Modulation of superconducting critical temperature in niobium film by using all-solid-state electric-double-layer transistor**
T. Tsuchiya, S. Moriyama, K. Terabe, and M. Aono
Appl. Phys. Lett. **107**(2015)013104
408. **In situ and Non-Volatile Photoluminescence Tuning and Nanodomain Writing Demonstrated by All-Solid-State Devices Based on Graphene Oxide**
T. Tsuchiya, T. Tsuruoka, K. Terabe, and M. Aono
ACS Nano **9** (2015) 2102-2110
407. **Influence of Atmosphere on Photo-Assisted Atomic Switch Operations**
T. Hino, T. Hasegawa, H. Tanaka, T. Tsuruoka, T. Ogawa, and M. Aono
Key Eng. Mater. **596** (2014) 116-120
406. **Two types of on-state observed in the operation of a redox-based three-terminal device**
Q. WANG, Y. Itoh, T. Tsuruoka, T. Hasegawa, S. Watanabe, S. Yamaguchi, T. Hiramoto, and M. Aono
Key Eng. Mater. **596** (2014) 111-115
405. **Reversible and nonvolatile modulation of electrical resistance in SnO₂ by external strain**
M. Sakurai, K. Liu, and M. Aono
Appl. Phys. Express **7** (2014) 031101-1
404. **New Approach to Molecular Self-Assembly through Formation of Dipeptide-based Unique Architectures by Artificial Supersaturation**
M. Sakurai, P. Koley, and M. Aono
Chem. Commun. **50** (2014) 12556-12559
403. **Micro x-ray photoemission and Raman spectroscopic studies on bandgap tuning of graphene oxide achieved by solid state ionics device**
T. Tsuchiya, K. Terabe, and M. Aono
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402. **Nanojunction between Fullerene and One-Dimensional Conductive Polymer on Solid Surfaces**
M. Nakaya, Y. Okawa, C. Joachim, M. Aono, and T. Nakayama
ACS Nano **8** (2014) 12259-12264
401. **Self-organized atomic switch networks**
A. Z. Stieg, A. V. Avizienis, H. O. Sillin, C. Martin-Olmos, M.-L. Lam, M. Aono, and J. K. Gimzewski
Jpn. J. Appl. Phys. **53** (2014) 01AA02
400. **In Situ and non-volatile bandgap tuning of multilayer graphene oxide in an all-solid-state electric double-layer transistor**
T. Tsuchiya, K. Terabe, and M. Aono
Adv. Mater. **26** (2014) 1087
399. **A theoretical and experimental study of neuromorphic atomic switch networks for reservoir computing**
H. O. Sillin, R. Aguilera, H.-H. Shieh, A. V. Avizienis, M. Aono, A. Z Stieg, and J. K Gimzewski
Nanotechnology **24** (2013) 384004

398. **Isotropic charge transport in highly ordered regioregular poly(3-hexylthiophene) monolayer**
M. Akai-Kasaya, Y. Okuaki, S. Nagano, A. Saito, M. Aono, and Y. Kuwahara
J. Phys. D: Appl. Phys. 46 (2013) 425303.
397. **Synaptic plasticity and memory functions achieved in aWO₃-x-based nanoionics device by using the principle of atomic switch operation**
R. Yang, K. Terabe, Y. Yao, T. Tsuruoka, T. Hasegawa, J. K. Gimzewski, and M. Aono
Nanotechnology 24 (2013) 384003
396. **Monitoring the presence of ionic mercury in environmental water by Plasmon-enhanced infrared spectroscopy**
C. V. Hoang, M. Oyama, O. Saito, M. Aono, and T. Nagao
Scientific Reports 3 (2013) 1175
395. **All-solid-state electric-double-layer transistor based on oxide ion migration in Gd-doped CeO₂ on SrTiO₃ single crystal**
T. Tsuchiya, K. Terabe, and M. Aono
Appl. Phys. Lett. 103 (2013) 073110
394. **Generic relevance of counter charges for cation-based nanoscale resistive switching memories**
S. Tappertzhofen, I. Valov, T. Tsuruoka, T. Hasegawa, R. Waser, and M. Aono
ACS Nano 7 (2013) 6396-6402
393. **Morphological transitions from dendrites to Nanowires in the electroless deposition of silver**
A. V. Avizienis, C. Martin-Olmos, H. O. Sillin, M. Aono, J. K. Gimzewski, and A. Z. Stieg
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392. **Volatile and nonvolatile selective switching of a photo-assisted initialized atomic switch**
T. Hino, T. Hasegawa, H. Tanaka, T. Tsuruoka, K. Terabe, T. Ogawa, and M. Aono
Nanotechnology 24 (2013) 384006
391. **Ordered Monomolecular Layers as a Template for the Regular Arrangement of Gold Nanoparticles**
M. Marina Vadimovna, M. Swapan, Y. Okawa, and M. Aono
Langmuir 29 (2013) 7334-7343
390. **Rate-limiting processes in the fast SET operation of a gapless-type Cu-Ta₂O₅ atomic switch**
T. Tsuruoka, T. Hasegawa, I. Valov, R. Waser, and M. Aono
AIP Advances 3 (2013) 032114-1
389. **Nonvolatile three-terminal operation based on oxygen vacancy drift in a Pt/Ta₂O₅-x/Pt Pt structure**
Q. Wang, Y. Itoh, T. Hasegawa, T. Tsuruoka, S. Yamaguchi, S. Watanabe, T. Hiramoto, and M. Aono
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388. **On-Demand Nanodevice with Electrical and Neuromorphic Multifunction Realized by Local Ion Migration**
R. Yang, K. Terabe, G. Liu, T. Tsuruoka, T. Hasegawa, J. K. Gimzewski, and M. Aono
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387. **Emergent criticality in complex turing B-type atomic switch networks**
A. Z. Stieg, A. V. Avizienis, H. O. Sillin, C. Matrin-Olmos, M. Aono, and James K. Gimzewski
Adv. Mater. 24 (2012) 286-293
386. **Verification of thermal effect produced by irradiation for scanning tunneling microscope combined with brilliant hard X-rays from synchrotron radiation**
A. Saito, Y. Tanaka, Y. Kohmura, M Akai-Kasaya, T. Ishikawa, Y. Kuwahara, and M. Aono
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385. **Selective adsorption of thiol molecules at sulfur vacancies on MoS₂(0001), followed by vacancy repair via S-C dissociation**
M. Makarova, Y. Okawa, and M. Aono
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384. **Enhancing the humidity sensitivity of Ga₂O₃/SnO₂ Core/Shell microribbon by applying mechanical strain and its application as flexible strain sensor**
K. Liu, M. Sakurai, and M. Aono
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383. **Controlling semiconducting and insulating states of SnO₂ reversibly by stress and voltage**
K. Liu, M. Sakurai, and M. Aono
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382. **Atomically controlled electrochemical nucleation at superionic solid electrolyte surfaces**
I. Valov, I Sapezanskaia, A. Nayak, T. Tsuruoka, T. Bredow, T. Hasegawa, G. Staikov, M. Aono, and R. Waser
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381. **Controlling the synaptic plasticity of a Cu₂S Gap-type atomic switch**
A. Nayak, T. Ohno, T. Tsuruoka, K. Terabe, T. Hasegawa, J.K. Gimzewski, and M. Aono
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380. **Flexible resistive switching memory using inkjet printing of a solid polymer electrolyte**
S. R. Mohapatra, T. Tsuruoka, T. Hasegawa. K. Terabe, and M. Aono
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379. **One-step fabrication of β-GaO₃-amorphous-SnO₂ core-shell microribbons and their thermally switchable humidity sensing properties**
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378. **Neuromorphic atomic switch networks**
A. V. Avizienis, H. O. Sillin, C. Martin-Olmos, H. H. Shieh, M. Aono, A. Z. Stieg, and J. K. Gimzewski
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377. **Electrical conduction of organic ultrathin films evaluated by an independently driven double-tip scanning tunneling microscope**
K. Takami, S. Tsuruta, Y. Miyake, M. Akai-Kasaya, A. Saito, M. Aono, and Y. Kuwahara
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376. **Electronic state formation by surface atom removal on a MoS₂ surface**
N. Kodama, T. Hasegawa, T. Tsuruoka, C. Joachim, and M. Aono
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375. **Effects of moisture on the switching characteristics of oxide-based, gapless-type atomic switches**
T. Tsuruoka, K. Terabe, T. Hasegawa, I. Valov, R. Waser, and M. Aono
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374. **Controlled chain polymerization and chemical soldering for single-molecule electronics**
Y. Okawa, M. Akai-Kasaya, Y. Kuwahara, S. K. Mandal, and M. Aono
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373. **Oxygen migration process in the interfaces during bipolar resistance switching behavior of WO_{3-x}-based nanoionics devices**
R. Yang, K. Terabe, T. Tsuruoka, T. Hasegawa, and M. Aono
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372. **Forming nanomaterials as layered functional structures toward materials nanoarchitectonics**
K. Ariga, Q. Ji, J. P. Hill, Y. Bando and M. Aono
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371. **Development and application of multiple-probe scanning probe microscopes**
T. Nakayama, O. Kubo, Y. Shingaya, S. Higuchi, T. Hasegawa, C-S Jiang, T. Okuda, Y. Kuwahara, K. Takami, and M. Aono
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370. **Atomic Switch: Atom/Ion movement controlled devices for beyond von-Neumann computers**
T. Hasegawa, K. Terabe, T. Tsuruoka, and M. Aono
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369. **Sensory and short-term memory formations observed in a Ag₂S Gap-type atomic switch**
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368. **Macroscopic superconducting current through a silicon surface reconstruction with indium adatoms: Si(111)-(√7×√3)-In**
T. Uchihashi, P. Mishra, M. Aono, and T. Nakayama
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367. **Molecular-scale size tuning of covalently bound assembly of C60 molecules**
M. Nakaya, M. Aono, and T. Nakayama
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366. **Surface-enhanced ATR-IR spectroscopy with interface-grown plasmonic gold-island films near the percolation threshold**
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365. **A quadruple-scanning-probe force microscope for electrical property measurements of microscopic materials**
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364. **Temperature effects on the switching kinetics of a Cu-Ta₂O₅-based atomic switch**
T. Tsuruoka, K. Terabe, T. Hasegawa, and M. Aono
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363. **Rate-determining factors in the chain polymerization of molecules initiated by local single-molecule excitation**
S. K. Mandal, Y. Okawa, T. Hasegawa, and M. Aono
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362. **Switching kinetics of a Cu₂S-based gap-type atomic switch**
A. Nayak, T. Tsuruoka, K. Terabe, T. Hasegawa, and M. Aono
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361. **Theoretical investigation of kinetics of a Cu₂S-based gap-type atomic switch**
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T. Ohno, T. Hasegawa, T. Tsuruoka, K. Terabe, James K. Gimzewski, and M. Aono
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359. **Chemical wiring and soldering toward all-molecule electronic circuitry**
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355. **Scanning tunneling microscopy and spectroscopy of electron-irradiated thin films of C₆₀ Molecules**
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M. Tada, T. Sakamoto, N. Banno M. Aono, H. Hada, and N. Kasai
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349. **Indium-doped ZnO nanowires: Optical properties and room-temperature ferromagnetism**
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K. W. Liu, M. Sakurai, M. Liao, and M. Aono
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345. **Structural characterization of amorphous Ta_2O_5 and $\text{SiO}_2 - \text{Ta}_2\text{O}_5$ used as solid electrolyte for nonvolatile switches**
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A. Nayak, T. Tamura, T. Tsuruoka, K. Terabe, S. Hosaka. T. Hasegawa, and M. Aono
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