

List of research papers written by our customers using our EUV mirrors and soft x-ray mirrors

NTT Advanced Technology Corporation

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NTT Advanced Technology Corporation (NTT-AT) has been providing EUV mirrors and soft x-ray mirrors to industrial and academic customers for more than 20 years. The customers are using our optics for many kinds of applications such as high order harmonics generation (HHG), attosecond science, plasma physics, and astronomy. In this document, we present customers' publications from 2010 to 2024 for your references. You can also find our product detail from the link below;

https://keytech.ntt-at.co.jp/en/xray/prd_3004.html

- [1] C. Stoeckl et al., "Evaluation of an x-ray multilayer mirror for radiography at sub-1-keV photon energies," [Rev. Sci. Instrum. \(2024\)](#)
- [2] Y. Hori and S. Gonda, "Error investigation for SI traceable pitch calibration of one-dimensional grating by grazing-incidence small-angle X-ray scattering," [Measurement \(2024\)](#)
- [3] S. Y. Liu et al., "Development of a narrowband multilayer mirror for extracting a single order component from high harmonics in the 63–70 eV region," [Appl. Opt. \(2024\)](#)
- [4] Kevin M. Dorney et al., "Actinic inspection of the extreme ultraviolet optical parameters of lithographic materials enabled by a table-top, coherent extreme ultraviolet source," [Proc. SPIE \(2024\)](#)
- [5] Y. Esashi et al., "Tabletop extreme ultraviolet reflectometer for quantitative nanoscale reflectometry, scatterometry, and imaging," [Rev. Sci. Instrum. \(2023\)](#)
- [6] Kevin M. Dorney et al., "Actinic inspection of the EUV optical parameters of lithographic materials with lab-based radiometry and reflectometry," [Proc. SPIE \(2023\)](#)
- [7] S. Hou et al., "Experimental observations of naturally occurring dust using a high-speed vacuum ultraviolet imaging system in EAST," [Plasma Sci. Technol. \(2023\)](#)
- [8] S. Petrakis et al., "Coherent XUV Multispectral Diffraction Imaging in the Microscale," [Appl. Sci. \(2023\)](#)
- [9] H. Mashiko et al., "Transient refraction spectroscopy with double attosecond pulses in inner-subshell electron," [Proc. CLEO Pac. Rim \(2022\)](#)
- [10] Y. Kato and H. Daido, "X-ray laser development at the Institute of Laser Engineering, Osaka University - with worldwide collaboration," [Proc. SPIE \(2021\)](#)
- [11] M. Ishino et al., "Soft x-ray laser beamline for surface processing and damage studies," [Appl. Opt. \(2020\)](#)
- [12] M. Ishino et al., "EUV Laser Irradiation System with Intensity Monitor," [Springer Proc. Phys. \(2020\)](#)
- [13] Y. Liu et al., "Extreme ultraviolet time- and angle-resolved photoemission setup with 21.5 meV resolution using high-order harmonic generation from a turn-key Yb:KGW amplifier," [Rev. Sci. Instrum. \(2020\)](#)

- [14] M. Ishino et al., “Analysis of Reflection Signal from EUV Multilayer Mirror for Irradiation-Induced Damage Study,” [Springer Proc. Phys. \(2018\)](#)
- [15] H. Takenaka et al., “Manufacture of High Precision, Multilayer Based Polarimeter Designed for Wide Energy Range from EUV to Soft X-Ray,” [Springer Proc. Phys. \(2018\)](#)
- [16] M. Nishikino et al., “Progress and Prospects of X-Ray Laser Research in QST,” [Springer Proc. Phys. \(2018\)](#)
- [17] Sh. Yamamoto et al., “Resonant magneto-optical Kerr effect measurement system with polarization analysis using a high harmonic generation laser,” [J. Electron Spectros. Relat. Phenomena \(2018\)](#)
- [18] F. Zhou et al., “Development of a high-speed vacuum ultraviolet (VUV) imaging system for the Experimental Advanced Superconducting Tokamak,” [Rev. Sci. Instrum. \(2017\)](#)
- [19] W. Grizolli et al., “Multilayer based soft-x-ray polarimeter at MAX IV Laboratory,” [Rev. Sci. Instrum. \(2016\)](#)
- [20] Z. J. Wang et al., “Upgrade of the tangentially viewing vacuum ultraviolet (VUV) telescope system for 2D fluctuation measurement in the large helical device,” [Rev. Sci. Instrum \(2016\)](#)
- [21] K. Yamada et al., “State-selective preparation of Ar²⁺ and Kr²⁺ by resonantly enhanced two-photon double ionization via intermediate Rydberg states using high-order harmonics,” [Phys. Rev. A \(2016\)](#)
- [22] K. H. Kim et al., “Direct observation of bond formation in solution with femtosecond X-ray scattering,” [Nature \(2015\)](#)
- [23] E. J. Takahashi et al., “Dispersion-free monochromatization method for selecting a single-order harmonic beam,” [arXiv \(2015\)](#)
- [24] S. Iida et al., “Impact of electron scattering in extreme ultraviolet reflective multilayer on electron image,” [J. Vac. Sci. Technol. B \(2013\)](#)
- [25] K. -B. Chai and P. M. Bellan, “Extreme ultra-violet movie camera for imaging microsecond time scale magnetic reconnection,” [Rev. Sci. Instrum \(2013\)](#)
- [26] K. .H. Kim et al., “Global Reaction Pathways in the Photodissociation of I₃⁻ Ions in Solution at 267 and 400 nm Studied by Picosecond X-ray Liquidography,” [Chem. Phys. Chem. \(2013\)](#)
- [27] M. Fushitani et al., “EUV and soft X-ray photoelectron spectroscopy of isolated atoms and molecules using single-order laser high-harmonics at 42 eV and 91 eV,” [J. Electron Spectros. Relat. Phenomena \(2012\)](#)
- [28] K. H. Kim et al., “Direct Observation of Cooperative Protein Structural Dynamics of Homodimeric Hemoglobin from 100 ps to 10 ms with Pump–Probe X-ray Solution Scattering,” [J. Am. Chem. Soc. \(2012\)](#)
- [29] I. Yoshikawa et al., “Imaging Observation of the Earth's Plasmasphere and Ionosphere by EUVI of ISS-IMAP on the International Space Station,” [IEEJ Trans. Fundam. Mater. \(2011\)](#)
- [30] G. Murakami et al., “Performance of Y₂O₃/Al multilayer coatings for the He-II radiation at 30.4 nm,” [Rev. Sci. Instrum. \(2011\)](#)