PROCEEDINGS OF SPIE

X-Ray Nanoimaging: Instruments and Methods VI

Barry Lai Andréa Somogyi Editors

23–24 August 2023 San Diego, California, United States

Sponsored and Published by SPIF

Volume 12698

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings: Author(s), "Title of Paper," in X-Ray Nanoimaging: Instruments and Methods VI, edited by Barry Lai, Andréa Somogyi, Proc. of SPIE 12698, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510666108

ISBN: 9781510666115 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)

SPIE.ora

Copyright © 2023 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

v Conference Committee

	NOVEL METHODS
12698 02	Limited angle x-ray tomography with machine learning [12698-2]
12698 03	A machine-learning-based approach for angular alignment of 2D multilayer Laue lenses for high-resolution hard x-ray microscopy [12698-4]
	NANOIMAGING APPLICATIONS
12698 04	Unraveling device evolution through multimodal in situ x-ray characterizations in halide perovskite photovoltaics $[12698-7]$
12698 05	Correlative microscopy using SEM based nano-CT [12698-9]
	PTYCHOGRAPHY I
12698 06	Chemical state visualization using x-ray spectroscopic ptychography in SPring-8 (Invited Paper) [12698-11]
12698 07	Multi-beam ptychography with coded Fresnel zone plates [12698-13]
12698 08	Ultrafast dynamical diffraction with nanobeams, simulations on thin Au crystals [12698-14]
	NANOIMAGING INSTRUMENTATION I
12698 09	Upcoming soft x-ray nanoprobe beamline at NSLS-II [12698-17]
12698 OA	Decentralization of synchrotron x-ray fluorescence microscopy: recent advances in lab-based $\mu \text{XRF}~[12698\text{-}18]$
	NANOIMAGING INSTRUMENTATION II
12698 OB	High-speed fly-scan capabilities for x-ray microscopy systems at NSLS-II [12698-21]

POSTER SESSION

12698 OC

The application of collision detection software development kit at TPS 39A2 nanoARPES beamline [12698-25]