

Special Issue

Breakthroughs in Advanced Medical X-Ray and CT Imaging: From Technology to Clinical Application

Message from the Guest Editor

Advances in X-ray and CT imaging physics continue to transform diagnostic capabilities. Among the most promising innovations are X-ray and CT interferometry, phase-contrast imaging, and photon-counting detector computed tomography (PCD-CT). This Special Issue aims to highlight breakthroughs across advanced X-ray and CT imaging, including system design, phase- and spectral-based techniques, algorithmic innovations, and translational studies. We welcome original research articles, reviews, and technical notes addressing:

- Phase- and small-angle-scatter sensitive X-ray technology and CT imaging, including interferometry, propagation-based, and edge-illumination methods.
- Photon-counting detector CT: material decomposition, high-resolution imaging, beam-hardening reduction, dose efficiency.
- Low-dose, high resolution and quantitative imaging.
- AI and machine learning for multi-modal, multi-energy imaging data.
- Preclinical and clinical methods demonstrating novel diagnostic value.

This issue seeks to foster interdisciplinary collaboration and accelerate the clinical translation of next-generation X-ray/CT imaging.

Guest Editor

Dr. Joyoni Dey

Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA, USA

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
diagnostics@mdpi.com

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Message from the Editor-in-Chief

You are cordially invited to submit research articles, short communications, comprehensive reviews, case reports or interesting images for consideration and publication in *Diagnostics* (ISSN 2075-4418). *Diagnostics* is published in open access format – research articles, reviews and other contents are released on the Internet immediately after acceptance. The scientific community and the general public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Andreas Kjaer

Department of Clinical Physiology, Nuclear Medicine & PET National University Hospital, Rigshospitalet, University of Copenhagen, Blegdamsvej 9, DK-2100 Copenhagen, Denmark

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