

## CURRICULUM VITAE Robert Nuster

Department of Physics  
Karl-Franzens-University, Graz  
Universitätsplatz 5  
A-8010 Graz

Phone: +43 316 380 5195  
Cell phone : +43 664 4200 602  
Fax: +43 316 380 9816  
Email: [ro.nuster@uni-graz.at](mailto:ro.nuster@uni-graz.at)  
ORCID: <https://orcid.org/0000-0001-6446-8057>



### Mag. Dr. Robert Nuster

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#### Education

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2007	PhD degree in Physics at the Karl-Franzens-University of Graz, Austria.
2003	Master degree in Physics, Karl-Franzens-University of Graz, Austria
1992-1997	Federal Higher Technical Institute for Educating and Experimenting (HTBL u. VA) Graz-Gösting, education branch electrical engineering

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#### Career History

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2015 - present	Senior postdoctoral position at the Department of Physics, University of Graz, Austria. Responsibility: Photoacoustic imaging and Laser Ultrasound inspection technology.
2015	Postdoctoral research fellow at the Material Center Leoben (MCL), Leoben, Austria. Responsibility: Laser Ultrasound inspection
2014 - 2015	Postdoctoral research fellow at the Division of Biomedical Photonics, Institute of Applied Physics, Bern, Switzerland. Responsibility: Photoacoustic microscopy
2011 - 2014	Senior postdoctoral position at the Department of Physics, University of Graz, Austria. Project leader of the research project: "Optical parallel detection for photoacoustic tomography"
2010 - 2011	Postdoctoral research fellow at the Research Center for Non Destructive Testing GmbH (Recendt GmbH), Linz, Austria
2008 - 2010	Postdoctoral research fellow at the Department of Physics, University of Graz. Staff member in the research project: Photoacoustic imaging in Biology and Medicine
2005 - 2008	Research Assistant at the Department of Physics, University of Graz. Staff member in the research project: High resolution thermoacoustic computer tomography

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## Research Interests

Photoacoustic imaging, integrated optics, characterization of materials by laser ultrasound and ultrasound sensor development.

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## Main scientific projects

Since 2/2020	„ Charakterisierung von Veränderungen der Organ Mikro-perfusion mit Hilfe von Photoakustischer Bildgebung “, project funded by the Austrian Research Promotion Agency (FFG).
Since 6/2015	“Fast all-optical photoacoustic micro-imaging of vasculature” project funded by the Austrian Science Fund (FWF).
2016 - 2019	„Development of an automation tool for quality management during production processes of porous Cu coatings“, project funded by the Austrian Research Promotion Agency (FFG).
2011 – 2014	“Optical parallel detection for high-speed photoacoustic imaging”, project funded by the Austrian Science Fund (FWF).

## Most important scientific results

- Optimization of image reconstruction methods in photoacoustic tomography using integrating ultrasound detection including the limited view geometry
  - Combination of photoacoustic and laser-ultrasound imaging in a purely optical device
  - Design of photoacoustic tomography devices employing optical camera-based ultrasound detection for high-resolution in-vivo imaging
  - Modeling of photoacoustic sound generation from arbitrary distributions of absorbed energy, including results from Monte Carlo simulations
  - Failure characterization and estimation of elastic properties of porous materials with laser ultrasound methods
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## Peer review activities

Peer reviewer at Applied Physics Letters, Applied Optics, Optics Express, Biomedical Optics Express, Optics Letters, Journal of Biomedical Optics, Physics in Medicine and Biology, Photoacoustics, Scientific Reports, Light Science & Applications, IEEE Transactions on Biomedical Engineering, Optica, Nature Communications, Journal of Optics.

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## Memberships

Full member of the BioTechMed-Graz consortium since 2017. BioTechMed-Graz is a cooperation and networking initiative of the University of Graz, the Medical University of Graz, and Graz University of Technology at the interface of basic biomedical research, technological developments and medical applications with the aim of conducting joint research relating to health issues.

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**Peer reviewed publications (journals, proceedings, books)**

104, publication list is accessible online via Google Scholar homepage or Elsevier's Scopus database.