Institut für Diagnostische und Interventionelle Radiologie

Cardiovascular Imaging

Priv.-Doz. Dr. Alexander Bunck, EBIR

Cardiovascular Imaging

Kardiovaskuläre Bildgebung, Interventionelle Radiologie

Publications (PubMed)

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Research Topics

The aim of our research is to improve and to develop imaging strategies for the large area of cardiovascular diseases. The special focus of our group lies on 4D Flow MRI and myocardial parametric imaging (T1- / T2-mapping). In addition, we work on improving CT imaging of coronary stents using novel reconstruction algorithms.

Facilities

The Department of Radiology currently operates 8 Philips MRI systems and 4 Philips CT systems.

Volunteer studies

As part of our research projects, we are looking for healthy subjects agreeing to volunteer for an examination.

Grant support

Hans und Gertie Fischer-Stiftung Gusyk-Stelle (University of Cologne)
Current Projects

Quantification of flow and turbulent kinetic energy in the heart and thoracic vessels in patients before and after TAVI / Mitraclip using 4D Flow MRI.
4D Flow MRI and vorticity-mapping in patients with diastolic dysfunction, pulmonary hypertension and aortic insufficiency.
Systematic evaluation of different cardiac T2-mapping sequences at 1.5 and 3.0T.
Diagnostic implications of T2-mapping and feature tracking-based strain analysis in acute myocarditis.
Use of native T1- and T2-mapping, speckle tracking and feature tracking for detecting cardiotoxic side effects of chemotherapy. Iterative model reconstructions for coronary artery stent imaging with computed tomography.

Collaborations

Conquer Chiari Research Center, Akron OH, USA
Gyrotools LLC, Zurich, Switzerland
Heart Center, University Hospital of Cologne, Cologne, Germany
Philips Healthcare, Best, The Netherlands

Selected publications

All publications:

Bunck, Baessler, Doerner, Hedderich, Hickethier, Houbois, K Abbas, Kroeger


AC Bunck, MA Engelen, B Schnackenburg, J Furkert, C Bremer, W Heindel, J Stypmann, D Maintz.
Feasibility of functional cardiac MR imaging in mice using a clinical 3 Tesla whole body scanner.

Invest Radiol. 44(12), 2009

**Group members**

Bettina Baessler, MD
Anastasia Dick, Medical Student (MD candidate)
Jonas Doerner, MD
Dennis Hedderich, MD
Tilman Hickethier, MD
Christian Houbois, MD
Christoph Kabbasch, MD
Jan-Robert Kroeger, MD
Jochen von Spiczak, Medical Student (MD candidate), MRI Physics Group