IWPFI 2006 - International Workshop on Pulmonary Functional Imaging
Abstract No. 91; Presentation: Poster

Title:
Functional analysis of lungs, lung lobes, and bronchopulmonary segments based on CT data

Authors:
Jan-Martin Kuhnigk, Volker Dicken, Stephan Zidowitz, Lars Bornemann, Markus Krebs, Stefan Krass, Heinz-Otto Peitgen

Abstract:
Owing to the rapid development of scanner technology, thoracic computed tomography (CT) offers new possibilities but also faces enormous challenges with respect to the quality of computer-assisted diagnosis and therapy planning. In the framework of the Virtual Institute for Computer Assistance in Clinical Radiology (VICORA) cooperative research project, methods were developed to assist the radiologist in functional analysis of thoracic CT data. By identifying the anatomic compartments of the lungs, highly automated computer software allows for the assessment of established functional CT parameters for each individual lung, pulmonary lobe, and pulmonary segment. Such region-based assessment enables a more localized diagnosis of diffuse lung diseases such as emphysema and more accurate estimation of regional lung function from CT data. With close cooperation between computer scientists and radiologists, the software was tested and optimized to achieve a high degree of usability, improving quantification in diagnosis, therapy planning, and therapy monitoring with respect to accuracy and time required.