

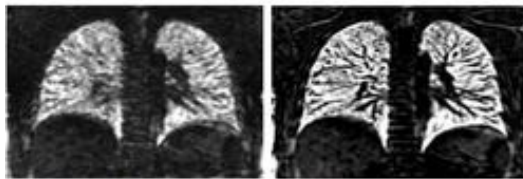
Technology Offer

Improved method of quantitative magnetic resonance lung imaging using ventilation-weighted Fourier decomposition

Reference Number 15-00420

Challenge

Magnetic resonance tomography (MRT) based lung imaging using Fourier decomposition (FD) is applied to generate ventilation-weighted images of the lung without the need of any contrast agent. Although the procedure of consecutive registration, filtering, and quantification is well established the conventional methods suffer from limitations in signal to noise ratio (SNR) and can reliably be used with healthy subjects only.



Direct comparison between two ventilation maps obtained by conventional Fourier Decomposition (FD) (left) and by the proposed method (right). Please note the significant difference in the vessel/parenchyma contrast.

Technology

The novel technology comprises an improved method to create quantitative ventilation maps of the lung with increased sensitivity and reproducibility. The enhancement of multiple sub-processes of MRT image processing includes stepwise registration, adjustment of frequency determination to pathological situations, two-step frequency filtering, and quantification by using scaled fractional ventilation values. The combination hereof results in quantitative medical lung imaging for various applications of unprecedented quality.

Commercial Opportunity

The technology is available for non-exclusive licensing.

Development Status

The technology has been successfully evaluated for different disease models in a clinical setting.

Patent Situation

US patent (US 10,010,293 B2) and European patent (EP3107066 B1, validated in Germany, DE602015061758) have been granted.