Two-Dimensional Phase Contrast Imaging Using Interleaved Projection Data

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an MRA technique that allows the acquisition of two-dimensional PC images in the same scan time as traditionally faster TOF techniques.

OVERVIEW

Magnetic resonance angiography (MRA) uses the magnetic resonance phenomenon to produce images of blood vessels. Two basic classes of non-contrast-enhanced MRA techniques have been evaluated: 1) time-of-flight (TOF) methods, which exploit the difference in MR signal saturation between flowing blood and stationary tissues; and 2) phase contrast (PC) methods, which encode the motion of flowing blood into the phase of the acquired signal. Although PC methods effectively cancel background and provide quantitative information on blood flow, they are less popular because they take four to six times longer than TOF methods to acquire image data.

THE INVENTION

UW-Madison researchers have developed a technique, called Phase contrast Imaging using PRojections (PIPR), that uses interleaved projection data acquisition without the use of phase encoding gradients to sample data for PC images. This improvement allows the acquisition of two-dimensional PC images in the same amount of scan time as traditionally faster TOF techniques.

APPLICATIONS

• Magnetic resonance imaging of blood vessels

KEY BENEFITS

• Produces high-quality, two-dimensional, phase contrast MRA images at far higher speeds than previously thought possible
• Makes less invasive PC imaging techniques more competitive with contrast-enhanced
MRA

ADDITIONAL INFORMATION

Related Technologies
For information on the benefits of 3-D MR angiography, see WARF reference number P96011US.
For additional information on PR data acquisition in MRI, see WARF reference number P98238US.

Tech Fields
Medical Imaging - MRI

CONTACT INFORMATION

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