

## Fast Method for Blood Flow Assessment

USC Case #09-080

### Market Opportunity:

Magnetic resonance imaging with phase contrast (PC-MRI) is currently used to measure blood flow velocities in the clinic. Blood velocities help determine blood pressure. This method has been developed using image sequencing that was previously uncommon due to high system performance requirements. One particular MRI technique, steady-state free precession (SSFP), has become increasingly popular due to its superior signal-to-noise ratio and fast scanning properties.

### USC Solution:

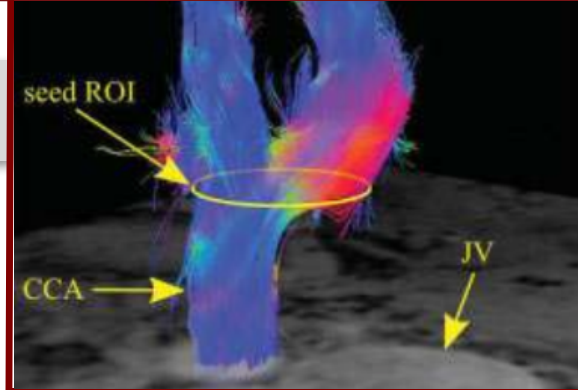
USC researchers have developed a technology that produces accurate approximations of blood velocities using balanced SSFP (SSFP) sequencing. These are acquired in half the time compared to conventional PC-MRI methods. In addition to blood velocity, this technique can also estimate blood acceleration – another way of finding a patient’s vascular impairments. Overall, resolution and sensitivity of images will be significantly enhanced.

### Value Proposition

- Cut total scanning time in half
- Images are more clear
- Increase accuracy of diagnoses
- Quicker 3D flow imaging

### Keywords:

Steady-state free precession, SSFP, magnetic resonance imaging, MRI, blood velocities, blood pressure, blood acceleration, cardiovascular



### Applications

- Cardiovascular Imaging

### Stage of Development

- Experimentally validated
- Available for exclusive and non-exclusive license

### Intellectual Property

#### Status:

Utility patent granted  
[US 8,212,561 B2](#)

#### Key Publication:

[Referenceless Phase Velocity Mapping Using Balanced SSFP, Magnetic Resonance in Medicine 2009](#)

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