

The Spinoza Centre for Neuroimaging

- ▶ The Amsterdam imaging core that offers access to both conventional (3 Tesla) and ultra-high field (7 Tesla) MRI facilities for fundamental and clinical research into the workings of the brain and brain disorders

CNS | Magnetic resonance imaging | ultra-high field MRI

Background

The Spinoza Centre for Neuroimaging is a collaboration between the Royal Netherlands Academy of Sciences, Netherlands Institute for Neuroscience, the University of Amsterdam, the VU University and Amsterdam UMC locations AMC and VUMC. The Spinoza Centre is a research centre, facility, and knowledge hub that combines neuroscience, cognitive and clinical research communities by combining world class expertise in neuroimaging with both conventional (3 Tesla) and ultra-high field (7 Tesla) MRI modalities. The proximity to both Amsterdam academic hospitals allows the Spinoza Centre to host clinicians involved in psychiatric and neurological disorders, as well as pharmacologists involved in the evaluation of pharmacodynamics in the brain. The Spinoza Centre for neuroimaging therefore welcomes collaborations with both academic and industry partners seeking imaging solutions for basic, diagnostic, and clinical and translational neuroscience research.

Facilities

The Spinoza Centre houses two Philips MRI scanners (3T and 7T). The 3T scanner is the workhorse of present-day neuroimaging. The 7T scanner is unique in the Amsterdam area and allows visualization of the brain at unprecedented high resolution, in terms of brain activity, structure, and metabolism. A variety of coils and custom sequences ensures a vast array of possible applications. Both scanners allow additional physiological measurements (cardiac, respiratory, skin conductance) as well as stimulus presentation and eye tracking. The facility is equipped with multiple testing rooms and waiting rooms, and has operating staff available.

Applications

The applications that are possible in the Spinoza Centre include but are not limited to:

- ▶ Structural and quantitative imaging at unprecedented (sub)structural resolution
- ▶ Functional imaging (fMRI), including pharmacological MRI (phMRI)
- ▶ MR spectroscopy to measure low-concentration neurometabolites like GABA and glutamate
- ▶ Metabolic imaging to assess changes in glycolysis or TCA cycle activity
- ▶ Repeated scans over time to develop predictive biomarkers for treatment response
- ▶ Cognitive and sleep disorder studies that combine MRI and EEG measurements
- ▶ Development of novel data acquisition protocols, processing, and modeling to suit specific needs
- ▶ A collaboration with the Netherlands Brain Bank allows the coupling of post-mortem MRI and brain tissue analytics
- ▶ Imaging capillary blood flow patterns through cerebrovascular reactivity measurements

The Spinoza Centre actively supports access to the facilities by providing skilled operators, consultancy in all phases of a project from planning to reporting, and permanent data storage with remote access. We can also link our state of the art neuroimaging facility and image analysis with specific clinical expertise in the Amsterdam area for tailored research or clinical projects. For more information about facility access, available services, and pricing see the contact information below.