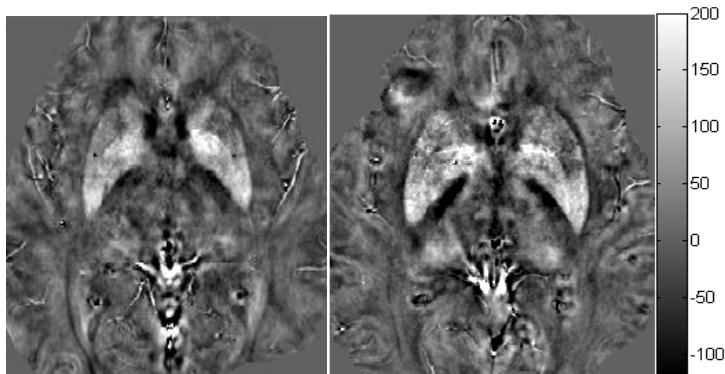


**Title: In vivo Quantitative Susceptibility Mapping using MRI.**

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**Abstract:** The magnetic susceptibility is the tendency of a material to be magnetized by an applied magnetic field. The mapping of this physical property can bring information related to the composition; for example, the presence of strongly paramagnetic ions (copper, iron, etc.). In several neurodegenerative diseases appear this ion deposition, for example, iron in the basal ganglia of patients with Parkinson's disease. The susceptibility measurements in a material are relatively easy using an appropriated magnetometric method, but it can be hard inside living organisms. The Magnetic Resonance Imaging (MRI) is a powerful noninvasive diagnostic technique based on the interaction of the nuclear spins of the biological medium with magnetic fields. This talk will discuss the main techniques of quantitative susceptibility mapping using MRI. From the physical principles involved is shown the procedure for processing data to generate the susceptibility maps as shown in the figure below. Additionally it will be presented some results of application of this technique in the study of Parkinson's disease.



Quantitative susceptibility maps (in ppb) of two females: Left: Patient with Parkinson's disease (60 years), Right: Normal Control (61 years).