

ABSTRACT

A 200-MHz Fully-Differential CMOS Front-End with an
On-Chip Inductor for Magnetic Resonance Imaging. (December 2005)

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Recently, there is a growing interest in applying electronic circuit design for biomedical applications, especially in the area of nuclear magnetic resonance (NMR). Nuclear magnetic resonance has been used for many years as a spectroscopy technique for analytical chemistry. Previous studies have demonstrated the design and fabrication of planar spiral inductors (microcoils) that serve as detectors for nuclear magnetic resonance microspectroscopy.

The goal of this research is to analyze, design, and test a prototype integrated sensor, which will comprise of a similar microcoil detector with analog components to form a multiple-channel front-end for a magnetic resonance imaging (MRI) system to perform microspectroscopy.