

Manipulation of nuclear spins via NMR - Some examples of application

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Over the past 70 years, Nuclear Magnetic Resonance (NMR) has undergone an extraordinary process of improvement in the field of Physics, with advanced applications in several areas of knowledge. Today, NMR is widely employed in the development of basic and applied research, both within and outside Academia. Outside Academia, NMR revolutionized the field of medical diagnosis with Magnetic Resonance Imaging (MRI) and the analysis of industrial products. Its applications range from fundamental studies, such as Quantum Information, to its use in Oil Industry for Well Logging. This lecture will present the efforts made to keep this important experimental methodology alive in an Academic Research Institution in the field of Physics, in all its aspects, including instrumentation, development of methods and their applications, with an emphasis on Petroleum Science. Research activities carried out in collaboration with scientists working in the Industry will also be presented.