

# Résonance Magnétique Nucléaire

## Principe et applications

Tom DUKATENZEILER

# Introduction

- 1938 : Isidor Isaac Rabi

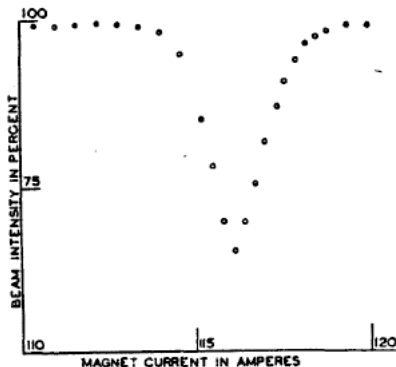


Figure – Rabi II, Zacharias JR, Millman S, Kusch P. A new method of measuring nuclear magnetic moment. Phys Rev 1938 ;53 :318

# Introduction

- 1946 : Purcell, Torrey et Pound

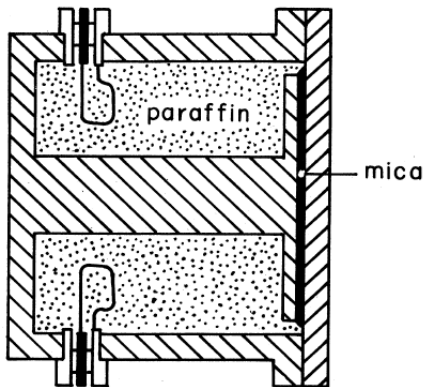


Figure – Purcell EM, Torrey HC, Pound RV. Resonance absorption by nuclear moments in a solid. Phys Rev 1946 ; 69 :37-38

# Introduction

- 1946 : Bloch

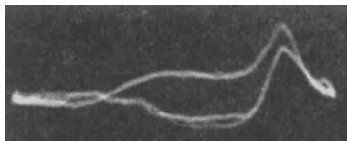


Figure – Bloch F, Hansen WW, Packard M. The nuclear induction experiment. Phys Rev 1946 ;70 :474-485

# Champ effectif

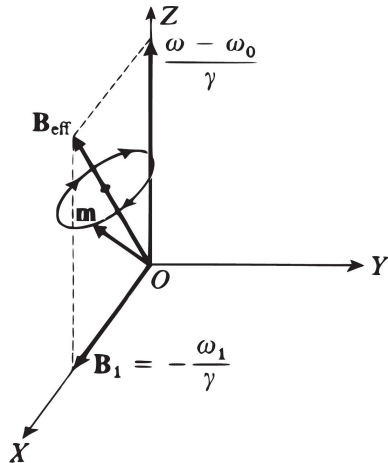


Figure – C. Cohen-Tannoudji, B. Diu, F. Laloë, Mécanique quantique I

# Relaxation de la magnétisation

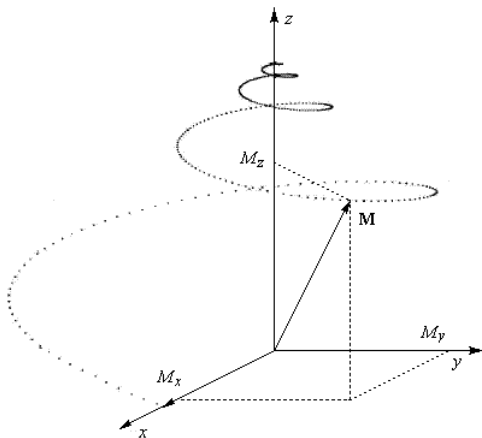


Figure – <https://www.faidherbe.org/site/cours/dupuis/rmn2.htm>

# Émission et détection des radio-fréquences

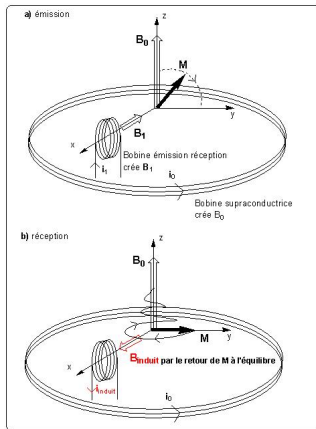


Figure – <https://culturesciences.chimie.ens.fr/thematiques/chimie-analytique/spectroscopies/les-origines-de-l-irm-la-resonance-magnetique>

# Exemple du 2,2 diméthylpropanol

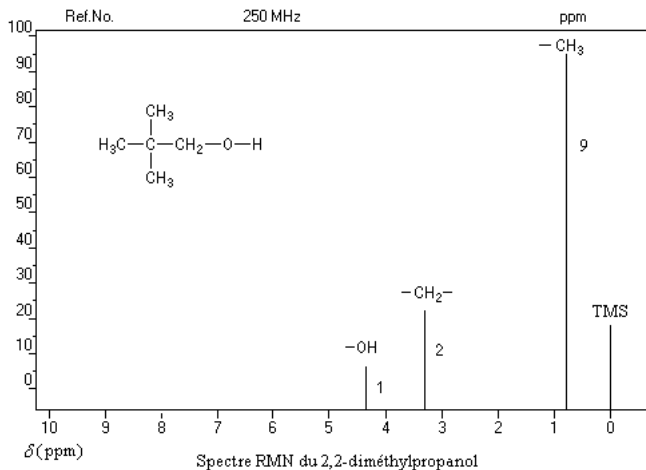


Figure – <https://www.faidherbe.org/site/cours/dupuis/rmn2.htm>



# IRM : bobines de gradients

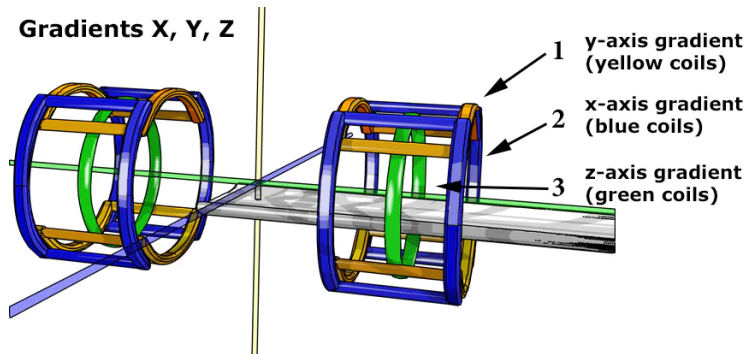


Figure – <https://www.imaios.com/fr/e-Cours/e-MRI/instrumentation-IRM-securite/gradients>

# IRM : exemple d'image

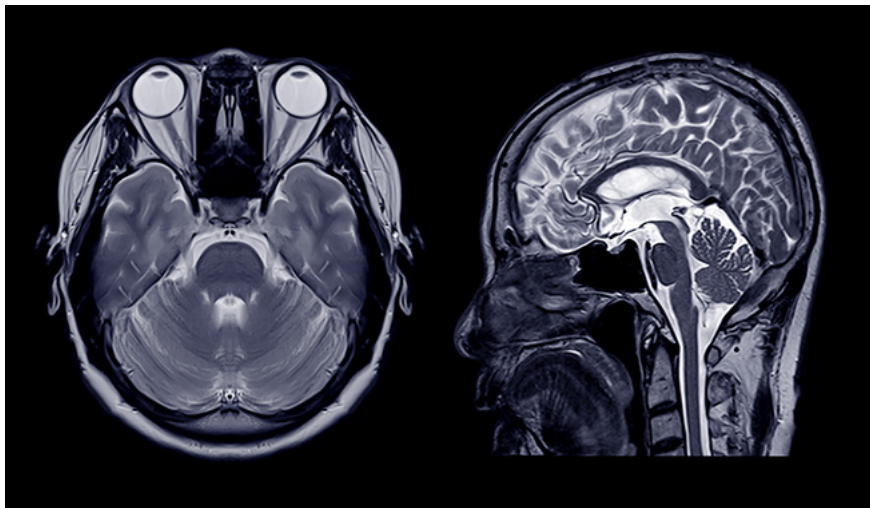


Figure – <https://www.sud-rhone-imagerie.fr>