

Some suggested references.

Books and journal articles:

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***Spin Dynamics: Basics of Nuclear Magnetic Resonance.* Malcolm H. Levitt, John Wiley & Sons
New York, 2001.

Understanding NMR Spectroscopy, James Keeler, John Wiley & Sons New York, 2005.
(see www-keeler.ch.cam.ac.uk/lectures/index.html)

Modern NMR Spectroscopy J.K.M. Saunders and B. K. Hunter Oxford University Press, New
York, 1993

Protein NMR Spectroscopy: Principles & Practice by John Cavanagh, Wayne
Fairbrother, Arthur Palmer and Nicholas Skelton Academic Press, 1996.

Web sites:

mutuslab.cs.uwindsor.ca/schurko/nmrcourse/downloads.htm
www.cis.rit.edu/htbooks/nmr/

Nobel Lectures in NMR and related fields

Physics 1952

Felix Bloch - The Principle of Nuclear Induction

nobelprize.org/nobel_prizes/physics/laureates/1952/index.html

Edward M.. Purcell - Research in Nuclear Magnetism

nobelprize.org/nobel_prizes/physics/laureates/1952/index.html

Chemistry 1991

Richard R. Ernst - Nuclear Magnetic Resonance Fourier Transform Spectroscopy

nobelprize.org/nobel_prizes/chemistry/laureates/1991/index.html

Chemistry 2002

Kurt Wuthrich - NMR Studies of Structure and Function of Biological Macromolecules

nobelprize.org/nobel_prizes/chemistry/laureates/2002/index.html

shared ½ with Koichi Tanaka (1/4) and John B. Fenn (1/4)

Physiology or Medicine 2003 - MRI

Paul Lauterbur - All Science is Interdisciplinary - from Magnetic Moments to Molecules to Men

nobelprize.org/nobel_prizes/medicine/laureates/2003/index.html

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Wider, G "Structure Determination of Biological Macromolecules in Solution Using NMR spectroscopy" *BioTechniques* **29**, 1278–1294 (2000).

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Kanelis V; Forman-Kay J D; Kay L E "Multidimensional NMR methods for protein structure determination" *IUBMB life* **52**, 291-302 (2001)

Clore, G. M. and Gronenborn, A. M., "Applications of Three- and Four-Dimensional Heteronuclear NMR Spectroscopy to Protein Structure Determination," *Prog. NMR Spectros.* **23**, 43-92 (1991).

Other topics

Line shapes in 2D spectra

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Vector descriptions (reviews)

Turner, *Prog. NMR Spect.*, **16**, 311-370 (1984).

Benn and Gunther, *Angew. Chem. Int. Ed. Engl.*, **22**, 350-380 (1983).

Phase Cycling

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Instrumentation, data collection, and processing

Hoult, *Prog. NMR Spect.*, **12**, 41-77 (1978).

Lindon and Ferrige, *Prog. NMR Spect.* **14**, 27-66 (1980).

Relaxation

Nagarajan Murali, V.V. Krishnan *Concepts in Magnetic Resonance*

Part A **17A**, 86-116 (2003) Pages:

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Journal articles are shorter than books and written about very specific topics. A journal is a collection of articles (like a magazine) that is published regularly throughout the year. Journals present the most recent research, and journal articles are written by experts, for experts. They may be published in print or online formats, or both. Sample images. The front cover of a sample academic journal (PORTAL: Journal of Multidisciplinary International Studies). Note that it includes a year, as well as "Vol." (for "Volume") and "No." (for "Number"). Beca URLs and DOIs for a journal article come after the volume and issue number. After the period following the issue number, put a space and followed by the full URL or DOI with no period at the end. Since URLs can potentially change and DOIs do not, APA journal citation style recommends using a Digital Object Identifier (DOI) instead of a website URL when possible. They may contain several articles, similar to chapters in a book or articles in a magazine. Articles usually have an abstract, or a short summary of the article, at the beginning, and a bibliography of sources at the end. What is a "scholarly" article? A "scholarly" article is an article that comes from an academic, peer-reviewed source.

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