

# CURRICULUM VITAE

**Professor William S. Price, BSc (Hons 1) PhD (Syd) CSci  
CChem FRACI FRSC**

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## MAJOR RESEARCH INTERESTS

Medical Nanotechnology, Magnetic Resonance and Biophysics: Especially molecular dynamics in biological and chemical systems using NMR imaging, relaxation and pulsed gradient spin-echo NMR measurements of translational diffusion. My research has direct applications to a wide range of practical problems including pharmaceutical screening and lithium batteries.

## TERTIARY EDUCATION

PhD in Physical Biochemistry, University of Sydney (1990, Nov.).  
BSc (Hons 1), University of Sydney (1986, Mar.).

## POSTDOCTORAL

September 1990 - March 1993 Postdoctoral Fellow at the Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, Republic of China.

March 1993 - March 1995 STA Fellow at the National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan.

## EMPLOYMENT

### CURRENT POSITION

**Professor of Nanotechnology**, School of Biomedical and Health Sciences and School of Medicine  
University of Western Sydney, (2003 Nov.).

### PREVIOUS POSITIONS

**Full Professor of Chemistry**, Tokyo Metropolitan University, Tokyo, Japan (2001 Apr. – 2003 Aug.).

**Senior Visiting Scientist**, Royal Institute of Technology, Stockholm, Sweden (2000 Jan.- 2001 Feb.).

**Chief Scientist**, Water Research Institute, Tsukuba, Japan (1996 Apr.- 1999 Dec.).

**Research Scientist**, Water Research Institute, Tsukuba, Japan (1995 Mar.-1996 Mar.).

**STA Fellow**, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan (1993 Mar.-1995 Mar.).

**Research Fellow**, Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan, ROC (1990 Sept.-1993 Mar.). I was second in charge of the NMR laboratory and co-supervised a number of MSc and PhD students.

**Consultant**, Australian Membrane and Biotechnology Research Institute Ltd. (AMBRI), CSIRO Division of Food Processing (1990 Jun.-1990 Jul.).

## AWARDS AND FELLOWSHIPS

### AWARDS

**Rennie Memorial Medal** (National Medal), Royal Australian Chemical Institute (1998).

**BioFirst Award**, (2004) NSW State Government.

**Ollé Prize for Chemical Literature** (National Prize), Royal Australian Chemical Institute (1999).

**RACI RSC Corday Morgan – Rennie Medal Exchange Lecturer** (1999).

**Senior Visiting Scientist** (2000), Royal Institute of Technology, Stockholm, Sweden (Senior fellowship from the Swedish Council for International Cooperation in Research and Higher Education).

**The Charles Gilbert Heydon Travelling Fellowship in the Biological Sciences** (1991-1992), University of Sydney.

**The Eleanor Sophia Wood Travelling Fellowship** (1991), University of Sydney.

**The Science and Technology Agency Fellowship** (1993-1995), Australian Academy of Science/Japanese Government.

**Postdoctoral Fellowship** (1990-1993), National Science Council, Republic of China.

**Commonwealth Postgraduate Research Award** (1986-1989).

**Travel Fellowship to attend the 11th International Biophysics Congress**, (1993), IUPAB.

**Postgraduate Student Poster Award** (1987), Australian Biochemical Society.

### FELLOWSHIPS

1. **Fellow of the Royal Society of Chemistry** (2000).

2. **Fellow of the Royal Australian Chemical Institute** (1999).

## PUBLICATIONS

### BOOKS

1. **Price, W.S.** (2009) *NMR Studies of Translational Motion*, Cambridge University Press. ISBN-13: 9780521806961 In Press.

### BOOK CHAPTERS

1. **Price, W.S.** (1996) Gradient NMR. In: *Annual Reports on NMR Spectroscopy*, (G. A. Webb, Ed.), Academic Press. **32**, pp. 51-142. (**Invited review chapter**).

2. **Price, W.S.** (1998) NMR imaging. In: *Annual Reports on NMR Spectroscopy*, (G. A. Webb, Ed.), Academic Press. **35**, pp. 139-216. (**Invited review chapter**).

3. **Price, W.S.**, Tsuchiya, F. and Arata, Y. (1999) Protein aggregation studies using PFG NMR diffusion measurements. In: *Advances in Magnetic Resonance in Food Science*, (P. S. Belton, B. P. Hills and G. A. Webb, Eds.), Royal Society of Chemistry. pp. 35-42.

4. **Price, W.S.** (1999) Water signal suppression in NMR spectroscopy. In: *Annual Reports on NMR Spectroscopy*, (G. A. Webb, Ed.), Academic Press. **38**, pp. 289-354. (**Invited review chapter**).

5. Ishikawa, M., Ide, H., **Price, W.S.**, Arata, Y. and Kitashima, T. (1999) Freezing behaviors in plant tissues as visualized by NMR microscopy and their regulatory mechanisms. In: *Cryopreservation of Tropical Plant Germplasm. Current Research Progress and Application*, (F. Engelmann and H. Takagi, Eds.), IPGRI. pp. 22-35.

6. **Price, W.S.** (2000) Probing molecular dynamics in biochemical and chemical systems using pulsed field gradient NMR diffusion measurements. In: *New Advances in Analytical Chemistry*, (Atta-ur-Rahman, Ed.), Harwood Academic Publishers. Vol. I, pp. 31-72. (**Invited review chapter**).
7. Sakaguchi, U., Ozawa, H., Amano, C., Fukumi, D. and **Price, W.S.** (2000) Implementation of the Collins-Kim-Holton algorithm to solve the Deutch's problem on one-, two-, and three-qubit NMR quantum computers. In: *Mathematical Aspects of Quantum Information and Quantum Chaos*, (M. Ohya, Ed.) RIMS Kokyuroku No. 1142, Research Institute for Mathematical Sciences, Kyoto University. pp. 36-52.
8. **Price, W.S.** (2000) NMR gradient methods in the study of proteins. In: *Annual Reports on the Progress in Chemistry Part C*, (G. A. Webb, Ed.), Royal Society of Chemistry. **96**, pp. 3-53. (**Invited review chapter**).
9. **Price, W.S.** (2002) Diffusion-based studies of aggregation, binding, and conformation of biomolecules: Theory and practice. In: *Encyclopedia of Nuclear Magnetic Resonance*, (D. M. Grant and R. K. Harris, Eds.), Wiley. Vol. **9**. pp. 364-374. (**Invited review chapter**).
10. **Price, W.S.** (2002) Solvent/water suppression in NMR. In: *New Advances in Analytical Chemistry*, (Atta-ur-Rahman, Ed.), Taylor and Francis. Vol. III, pp. 119-162. (**Invited review chapter**).
11. **Price, W.S.** (2005) Applications of Pulsed Gradient Spin-Echo NMR Diffusion Measurements to Solution Dynamics and Organization. In: *Diffusion Fundamentals: Basic Principles of Theory, Experiment and Applications*, (J. Kärger, F. Grinberg, and P. Heitjans, Eds.), Leipzig University Press. pp. 490-508. (**Invited chapter**).
12. **Price, W.S.** (2006) NMR diffusometry. In: *Modern Magnetic Resonance*, (G. A. Webb, Ed.), Springer. pp. 105-111 ISBN: 1402038941. (**Invited review chapter**).
13. Yadav, N. and **Price, W.S.** (2007) Effects of Polydispersity on PGSE NMR Coherence Features. In: *Diffusion Fundamentals II*, (S. Brandani, C. Chmelik, J. Kärger, and R. Volpe, Eds.), Leipzig University Press. pp. 40-51. (**Invited chapter**).
14. Reddy, N., Wilson, M.A., Kannangara, G.S.K., **Price, W.S.** and Lee, G.S.H. (2008) Forensic Applications of NMR Imaging and Solid State NMR Spectroscopy. In: *Forensic Photography and Imaging (International Forensic Science and Investigation)* (G. Porter, Ed.) CRC Press. ISBN: 0849331471. In press.
15. Yadav, N.N., Stait-Gardner, T. and **Price, W.S.** (2008) Hardware considerations for Diffusion MRI. In: *Diffusion MRI* (D. Jones, Ed.), Oxford University Press. In Press (16 Oct 2008). (**Invited chapter**).
16. Stait-Gardner, T., Willis, S.A., Yadav, N.N., Zheng, G. and **Price, W.S.** (2009) NMR Diffusion Measurements of Complex Systems. In: *Diffusion Fundamentals III*, (S. Brandani, C. Chmelik, J. Kärger, and R. Volpe, Eds.), Leipzig University Press. pp. (**Invited chapter**). In press.

#### JOURNAL PUBLICATIONS (REFEREED)

1. **Price, W.S.**, Mendz, G.L., and Martenson, R.E. (1988) Conformation of a heptadecapeptide encephalitogenic in rhesus monkey. *Biochemistry* **27**, 8990-8999.
2. **Price, W.S.**, Kuchel, P.W., and Cornell, B.A. (1989) Microviscosity of human erythrocytes studied with hypophosphite and  $^{31}\text{P}$  NMR. *Biophys. Chem.* **33**, 205-215.
3. **Price, W.S.**, Roufogalis, B.D., and Kuchel, P.W. (1989) A simple and inexpensive method for preparing erythrocyte membranes by filtration through a hollow-fibre system. *Anal. Biochem.* **179**, 190-193.
4. **Price, W.S.**, Chapman, B.E., Cornell, B.A., and Kuchel, P.W. (1989) Translational diffusion of glycine in erythrocytes measured at high resolution with pulsed field gradients. *J. Magn. Reson.* **83**, 160-166.
5. **Price, W.S.**, and Kuchel, P.W. (1990) Hypophosphite transport in human erythrocytes studied by 'overdetermined' one-dimensional exchange analysis. *NMR in Biomedicine* **3**, 59-63.
6. **Price, W.S.**, and Kuchel, P.W. (1990) Restricted diffusion of bicarbonate and hypophosphite ions modulated by transport in suspensions of red blood cells. *J. Magn. Reson.* **90**, 100-110.
7. **Price, W.S.**, Chapman, B.E. and Kuchel, P.W. (1990) Correlation of viscosity and conductance with  $^{23}\text{Na}^+$  NMR  $T_1$  measurements. *Bull. Chem. Soc. Jpn.* **63**, 2961-2965.
8. **Price, W.S.**, and Kuchel, P.W. (1991) Effect of non-rectangular gradient pulses in the Stejskal and Tanner (diffusion) pulse sequence. *J. Magn. Reson.* **94**, 133-139.
9. **Price, W.S.**, Kuchel, P.W., and Cornell, B.A. (1991) A  $^{35}\text{Cl}$  and  $^{37}\text{Cl}$  NMR study of chloride binding to the erythrocyte anion transport protein. *Biophys. Chem.* **40**, 329-337.
10. Minami, T., **Price, W.S.**, and Cutler, D.J. (1992) Chloride-37 nuclear magnetic resonance spectroscopic study of binding of salicylic acid and other hydroxybenzoic acids to the band 3 anion transport protein of human erythrocytes. *J. Pharm. Sci.* **81**, 419-423.
11. Tsai, C.-L., **Price, W.S.**, Chang, Y.-L., Perng, B.-C., and Hwang, L.-P. (1991) Multi-spin order relaxation study of the hypophosphite ion. *J. Phys. Chem.* **95**, 7546-7551.
12. **Price, W.S.**, Perng, B.-C., Tsai, C.-L., and Hwang, L.-P. (1992) Microviscosity of human erythrocytes studied using hypophosphite two-spin order relaxation. *Biophys. J.* **61**, 621-630.
13. **Price, W.S.**, Ge, N.-H., and Hwang, L.-P. (1992) Effects of higher-rank multipoles on spectral lineshapes of  $I = 3/2$  quadrupolar nuclei near the null point in inversion recovery experiments. *J. Magn. Reson.* **98**, 134-141.
14. Ge, N.-H., **Price, W.S.**, Hong, L.-Z., and Hwang, L.-P. (1992) Application of null point spectra in inversion recovery experiments for studying  $I = 3/2$  quadrupolar nuclei involved in exchange processes. *J. Magn. Reson.* **97**, 656-660.
15. **Price, W.S.**, Ge, N.-H., Hong, L.-Z., and Hwang, L.-P. (1993) Characterization of chloride ion binding to human serum albumin using Cl NMR null point analysis. *J. Am. Chem. Soc.* **115**, 1095-1105.

16. **Price, W.S.**, and Hwang, L.P. (1992) Some recent developments in NMR approaches for studying liquid molecular dynamics and their biological applications. *J. Chin. Chem. Soc.* **39**, 479-496.
17. Perng, W.C., **Price, W.S.**, Hsu, K., and Hwang, L.-P. (1993) The effects of hypothermia on the intracellular pH of erythrocytes studied using  $^{31}\text{P}$  NMR and endogenous compounds. *Eur. J. Clin. Chem. Clin. Biochem.* **31**, 413-418.
18. **Price, W.S.**, Perng, W.C., Kwok, W.M., and Hwang, L.-P. (1993) Applications of high field NMR spectroscopy to clinical medicine. *Chin. J. Magn. Reson.* **10**, 453-476.
19. **Price, W.S.**, Chang, W.T., and Hwang, L.-P. (1994) Design and construction of a pulsed field gradient NMR probe for a high field superconducting magnet. *J. Chinese Chem. Soc.* **41**, 119-127.
20. Chang, W.T., Shen, Z.S., **Price, W.S.**, Ge, N.-H. and Hwang, L.-P. (1994) Effects of higher rank multipoles on spectral lineshapes near the null point in the inversion recovery experiment. *J. Magn. Reson.* **A109**, 98-102.
21. Barzykin, A.V., Hayamizu, K., **Price, W.S.**, and Tachiya, M. (1995) Pulsed field gradient NMR of diffusive transport through a spherical interface into an external medium containing a relaxation agent. *J. Magn. Reson.* **A114**, 39-46.
22. **Price, W.S.**, and Hayamizu, K. (1995) Artifacts in experimental and simulated solid-state  $^2\text{H}$  NMR powder spectra. *J. Magn. Reson.* **A114**, 73-79.
23. **Price, W.S.**, Kikuchi, N., Hayamizu, K., Matsuda, H., Okada, S., and Nakanishi, H. (1995) Factors affecting the solid-state polymerization of 1,4-bis(1,3-octadecadiynyl)benzene to a polydiacetylene. *Macromolecules* **28**, 5363-5369.
24. Naito, A., Iizuka, T., Tuzi, S., **Price, W.S.**, Hayamizu, K., and Saito, H. (1995) Phenyl ring dynamics of the insulin fragment Gly-Phe-Phe(B23-B25) by solid state deuterium NMR. *J. Mol. Struct.* **355**, 55-60.
25. **Price, W.S.**, and Arata, Y. (1996) The manipulation of water relaxation and water suppression in biological systems using the Water-PRESS pulse sequence. *J. Magn. Reson.* **B112**, 190-192.
26. **Price, W.S.**, Nara, M., and Arata, Y. (1997) A pulsed field gradient NMR study of the aggregation and hydration of parvalbumin. *Biophys. Chem.* **65**, 179-187.
27. **Price, W.S.**, Hayamizu, K., and Arata, Y. (1997) Optimization of the Water-PRESS pulse sequence and its integration into pulse sequences for studying biological macromolecules. *J. Magn. Reson.* **126**, 256-265.
28. **Price, W.S.**, Ide, H., Arata, Y., and Ishikawa, M. (1997) Visualization of freezing behaviours in flower bud tissues of cold hardy *Rhododendron japonicum* by nuclear magnetic resonance micro-imaging. *Aust. J. Plant Physiol.* **24**, 599-605.
29. **Price, W.S.** (1997) Pulsed-field gradient NMR as a tool for studying translational diffusion. Part I. Basic theory. *Concepts Magn. Reson.* **9**, 299-336.

30. Ishikawa, M., **Price, W.S.**, Ide, H., and Arata, Y. (1997) Visualization of freezing behaviors in leaf and flower buds of Full-Moon Maple by nuclear magnetic resonance microscopy. *Plant Physiol.* **115**, 1515-1524.
31. **Price, W.S.**, Ide, H., Ishikawa, M., and Arata, Y. (1997) Intensity changes in  $^1\text{H}$ -NMR micro-images of plant materials exposed to subfreezing temperatures. *Bioimages* **5**, 91-99.
32. Hayamizu, K., **Price, W.S.**, Matsuda, H., Okada, S., and Nakanishi, H. (1998) NMR studies of polydiacetylenes having alkyl chains. Molecular motions of precursor monomers and the polymers at various stages of the solid-state polymerization. *J. Mol. Struct.* **441**, 205-211.
33. Hayamizu, K., Aihara, Y., Arai, S. and **Price, W.S.** (1998) Diffusion, conductivity and DSC studies of a polymer electrolyte composed of cross-linked PEO,  $\gamma$ -butyrolactone and  $\text{LiBF}_4$ . *Solid State Ionics* **107**, 1-12.
34. Ide, H., **Price, W.S.**, Arata, Y., and Ishikawa, M. (1998) Freezing behaviors in leaf buds of cold hardy conifers visualized by NMR. *Tree Physiol.* **18**, 451-458.
35. **Price, W.S.**, Barzykin, A.V., Hayamizu, K., and Tachiya, M. (1998) A model for diffusive transport through a spherical interface probed by pulsed field gradient NMR. *Biophys. J.* **74**, 2259-2271.
36. **Price, W.S.** (1998) Pulsed-field gradient NMR as a tool for studying translational diffusion. Part II. Experimental aspects. *Concepts Magn. Reson.* **10**, 197-237.
37. **Price, W.S.**, Tsuchiya, F., Suzuki, C. and Arata, Y. (1999) Characterization of the solution properties of *pichia farina* killer toxin using PGSE NMR diffusion measurements. *J. Biomol. NMR.* **13**, 113-117.
38. **Price, W.S.**, Ide, H. and Arata Y. (1999) Self-diffusion of supercooled water to 238 K using PGSE NMR diffusion measurements. *J. Phys. Chem. A.* **103**, 448-450.
39. **Price, W.S.**, Hayamizu, K., Ide, H., and Arata, Y. (1999) Strategies for diagnosing and alleviating artifactual attenuation associated with large gradient pulses in PGSE NMR diffusion measurements. *J. Magn. Reson.* **139**, 205-212.
40. **Price, W.S.**, Kobayashi, A., Ide, H., Natori, S. and Arata, Y. (1999) Visualising the postembryonic development of *Sarcophaga Peregrina* (flesh fly) by NMR Microscopy. *Physiological Entomology* **24**, 386-390.
41. **Price, W.S.**, Tsuchiya, F., and Arata, Y. (1999) Lysozyme aggregation, and solution properties studied using PGSE NMR. *J. Am. Chem. Soc.* **121**, 11503-11512.
42. Hayamizu, K., Aihara, Y., Arai, S. and **Price, W.S.** (2000) Self-diffusion coefficients of lithium, anion, polymer and solvent in polymer gel electrolytes measured using  $^7\text{Li}$ ,  $^{19}\text{F}$  and  $^1\text{H}$  pulsed-gradient spin-echo NMR. *Electrochimica Acta* **45**, 1313-1319.
43. **Price, W.S.** and Söderman, O. (2000) Self-diffusion coefficients of some hydrocarbons in water: Measurements and scaling relations. *J. Phys. Chem. A* **104**, 5892-5894.

44. Aihara, Y., Sugimoto, K., **Price, W.S.**, Hayamizu, K. (2000) Ionic conduction and self-diffusion near infinitesimal concentration in lithium salt-organic solvent electrolytes. *J. Chem. Phys.* **113**, 1981-1191.
45. **Price, W.S.**, Ide, H., Arata, Y. and Söderman, O. (2000) Temperature dependence of the self-diffusion of supercooled heavy water to 244 K. *J. Phys. Chem. B* **104**, 5874-5876.
46. **Price, W.S.**, Ide, H., and Arata Y. (2000) Translational and rotational motion of isolated water molecules in nitromethane studied using  $^{17}\text{O}$  NMR. *J. Chem. Phys.* **113**, 3686-3689.
47. Hayamizu, K., Aihara, Y., and **Price, W.S.** (2000) Correlating the NMR self-diffusion and relaxation measurements with ionic conductivity in polymer electrolytes composed of cross-linked poly(ethyleneoxide-propyleneoxide) doped with  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ . *J. Chem. Phys.* **113**, 4785-4793.
48. Hayamizu, K., Aihara, Y., and **Price, W.S.** (2001) NMR and ion conductivity studies on cross-linked poly(ethylene oxide-propylene oxide) and branched polyether doped with  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ . *Electrochimica Acta* **46**, 1475-1485.
49. **Price, W.S.**, Tsuchiya, F., and Arata, Y. (2001) Time-dependence of aggregation in crystallizing lysozyme solutions using PGSE NMR self-diffusion measurements. *Biophys. J.* **80**, 1585-1590.
50. **Price, W.S.**, Stilbs, P., Jönsson, B. and Söderman, O. (2001) Macroscopic background gradient and radiation damping effects on high-field PGSE NMR diffusion measurements. *J. Magn. Reson.* **150**, 49-56.
51. Hayamizu, K., Sugimoto, K., Akiba, E., Aihara, Y., Bando, T. and **Price, W.S.** (2002) An NMR and ionic conductivity study of ion dynamics in liquid polyethyleneoxide-based electrolytes doped with  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ . *J. Phys. Chem. B* **106**, 547-554.
52. **Price, W.S.**, Elwinger, F., Vigouroux, C. and Stilbs, P. (2002) PGSE-WATERGATE, a new tool for NMR diffusion-based studies of ligand-macromolecule binding. *Magn. Reson. Chem.* **40**, 391-395. (The paper related was featured on Wiley's SpectroscopyNow website)
53. **Price, W.S.** and Wälchli, M. (2002) NMR diffusion measurements of strong signals: The PGSE-Q-switch experiment. *Magn. Reson. Chem.* **40**, S128-S132. (Invited paper).
54. **Price, W.S.**, Stilbs, P. and Söderman, O. (2003) Determination of pore space shape and size in porous systems using NMR diffusometry. Beyond the short gradient pulse approximation. *J. Magn. Reson.* **160**, 139-143.
55. Hayamizu, K., Akiba, A. Bando, T., Aihara, Y. and **Price, W.S.** (2003) NMR studies on polyethyleneoxide-based polymer electrolytes with different cross-linking doped with  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ . Restricted diffusion of the polymer and lithium ion and time-dependent diffusion of the anion. *Macromolecules.* **36**, 2785-2792.
56. **Price, W.S.**, Ide, H. and Arata, Y. (2003) Solution dynamics in aqueous monohydric alcohol systems. *J. Phys. Chem. A* **107**, 4784-4789.

57. **Price, W.S.** (2003) Recent advances in NMR diffusion techniques for studying drug binding. *Aust. J. Chem.* **56**, 855-860. (**Invited paper**).
58. **Price, W.S.** and Söderman, O. (2003) Some 'reflections' on the effects of finite gradient pulse lengths in PGSE NMR experiments in restricted systems. *Israel J. Chem.* **43**, 25-32. (**Invited paper**).
59. Hayamizu, K., Akiba, E. and **Price, W.S.** (2003) Ion diffusion restricted by time-dependent barriers in a viscous polyethylene-based liquid electrolyte. *Macromolecules* **36**, 8596-8598.
60. Aihara, Y., Bando, T., Nakagawa, H., Yoshida, H., Hayamizu, K., Akiba, E. and **Price, W.S.** (2004) Ion transport properties of six lithium salts dissolved in  $\gamma$ -butyrolactone studied by self-diffusion and ionic conductivity measurements. *J. Electrochem. Soc.* **15**, A119-A122.
61. Hayamizu, K. and **Price, W.S.** (2004) A new type of NMR tube for reducing convection effects in PGSE-NMR measurements of self-diffusion coefficients of liquid samples. *J. Magn. Reson.* **167**, 328-333.
62. **Price, W.S.** and Hill, J.O. (2004) Raising the status of chemistry education. *U. Chem. Ed.* **8**, 13-20.
63. Söderman, O., Stilbs, P. and **Price W.S.** (2004) NMR of surfactants. *Concepts in Magnetic Resonance.* **23A**, 121-135.
64. **Price, W.S.**, Aihara, Y. and Hayamizu, K. (2004) NMR Studies of Nanoscale Organization and Dynamics in Polymer Electrolytes. *Aust. J. Chem.* **57**, 1185-1190.
65. Nakagawa, H., Aihara, Y., Nukuda, T., Hayamizu, K. and **Price, W.S.** (2004) Ionic conduction and ion diffusion in binary room-temperature ionic liquids composed of [emim][BF<sub>4</sub>] and LiBF<sub>4</sub>. *J. Phys. Chem. B* **108**, 19527-19532.
66. Ishikawa, M., Ide, H., **Price, W.S.** and Arata, Y. (2004) NMR micro-imaging for visualizing freezing behaviour in plant tissues. *Cryobiology and Cryotechnology* **50**, 21-31.
67. Borompichaichartkul, C., Moran, G., Srzednicki, G. and **Price, W.S.** (2005) Nuclear magnetic resonance (NMR) and magnetic resonance imaging (MRI) studies of corn at subzero temperatures. *J. Food Engineering.* **69**, 199-205.
68. **Price, W.S.** (2005) Applications of pulsed gradient spin-echo NMR diffusion measurements to solution dynamics and organization. *Diffusion Fundamentals* **2**, 112.1-112.19.
69. **Price, W.S.** (2006) Protein association studied using NMR diffusometry. *Current Opinion in Colloid and Interface Science.* **11**, 19-23. (**Invited paper**). (<http://dx.doi.org/10.1016/j.cocis.2005.10.005>).
70. Inglis, S.R., McGann, M.J., **Price, W.S.**, and Harding, M.M. (2006) Diffusion NMR studies on fish antifreeze proteins and synthetic analogues. *FEBS Lett.* **580**, 3911-3915.

71. **Price, W.S.** Hallberg, F., and Stilbs, P. (2007) A PGSE diffusion and electrophoretic NMR study of Cs<sup>+</sup> and Na<sup>+</sup> dynamics in aqueous crown ether systems. *Magn. Reson. Chem.* **45**, 152-156.
72. Still, B.M., Anil Kumar, P.G., Aldrich-Wright, J.R., and **Price, W.S.**, (2007) <sup>195</sup>Pt theory and application. *Chem. Soc. Rev.* **36**, 665-686.
73. Zheng, G. and **Price, W.S.** (2007) Suppression of background gradients in (B<sub>0</sub> gradient-based) NMR diffusion experiments. *Concepts in Magn. Reson.* **30A**, 261-277.
74. Traytak, S.D. and **Price, W.S.** (2007) Exact solution for anisotropic diffusion-controlled reactions with partially reflective conditions. *J. Chem. Phys.* **18**, 184508-1-184508-8.
75. Yadav, N. and **Price, W.S.** (2007) Effects of Polydispersity on PGSE NMR Coherence Features. *Diffusion Fundamentals* **6**, 2.1-2.12.
76. Wheate, N. J., Anil Kumar, P.G., Torres, A.M., Aldrich-Wright, J.R. and **Price, W.S.** (2008) Examination of cucurbit[7]uril and its host-guest complexes by diffusion NMR. *J. Phys. Chem. B.* **112**, 2311-2314.
77. Zheng, G., Stait-Gardner, T., Anil Kumar, P.G. Torres, A.M. and **Price, W.S.** (2008) PGSTE-WATERGATE: An STE-based PGSE NMR sequence with excellent solvent suppression. *J. Magn. Reson.* **191**, 159-163.
78. Torres, A.M., Dela Cruz R. and **Price, W.S.** (2008) Removal of *J*-coupling peak distortion in PGSE experiments. *J. Magn. Reson.* **193**, 311-316.
79. Yadav, N.N., Torres, A.M., and **Price, W.S.** (2008) An improved approach to calibrating high magnetic field gradients for pulsed field gradient experiments. *J. Magn. Reson.* **194**, 25-28. ([doi:10.1016/j.jmr.2008.05.015](https://doi.org/10.1016/j.jmr.2008.05.015)).
80. Zheng, G., Torres, A.M., and **Price, W.S.** (2008) Solvent suppression using phase-modulated binomial sequences and applications to diffusion measurements. *J. Magn. Reson.* **194**, 108-114. ([doi:10.1016/j.jmr.2008.06.004](https://doi.org/10.1016/j.jmr.2008.06.004)).
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