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T-CYCLE EPR Development at 275 GHz for the study of reaction kinetics & intermediates

Panarelli, E.G.

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Author: Panarelli, E.G.

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Bibliography

- [1] T.R. Cech. *Science*, 236:1532–1539, 1987.
- [2] A. Hershko and A. Ciechanover. *Annual Review of Biochemistry*, 61:761–807, 1992.
- [3] D. Mu, D. S. Hsu, and A. Sancar. *The Journal of Biological Chemistry*, 271, 1996.
- [4] P. D. Mitchell. *Nature*, 191:144–148, 1961.
- [5] P. D. Boyer. *Annual Review of Biochemistry*, 66:717–749, 1997.
- [6] I. Langmuir. *Journal of the American Chemical Society*, 40:1361–1403, 1918.
- [7] K. Christmann, G. Ertl, and T. Pignet. *Surface Science*, 54:365–392, 1976.
- [8] A. H. Willbourn and C. N. Hinshelwood. *Proceedings of the Royal Society of London. Series A. Mathematical and Physical Sciences*, 185:353–369, 1946.
- [9] M. J. Molina and F. S. Rowland. *Nature*, 249:810–812, 1974.
- [10] W.B. Miller, S.A. Safron, and D.R. Herschbach. *Discussions of the Faraday Society*, 44:108–122, 1967.
- [11] A. H. Zewail. *The Journal of Physical Chemistry A*, 104:5660–5694, 2000.
- [12] K. Möbius and A. Savitzky. *High-Field EPR Spectroscopy on Proteins and their Model Systems*. RSC Publishing, 2009.
- [13] D.A. McQuarrie and J.D. Simon. *Physical Chemistry: A Molecular Approach*, chapter 29, pages 1191–1193. University Science Books, Sausalito, CA, 1997.
- [14] S. Arrhenius. *Zeitschrift für Physikalische Chemie*, 4U:96–116, 1889.
- [15] K.J. Laidler and M.C. King. *The Journal of Physical Chemistry*, 87:2657–2664, 1983.

- [16] H. Eyring. *The Journal of Chemical Physics*, 3:107–115, 1935.
- [17] J.C. Polanyi and A.H. Zewail. *Accounts of Chemical Research*, 28:119–132, 1995.
- [18] R.C. Bray. *Biochemical Journal*, 81:189–195, 1961.
- [19] Update Instrument System 1000 Chemical/Freeze Quench Apparatus. User's manual.
- [20] A.V. Cherepanov and S. de Vries. *Biochimica et Biophysica Acta*, 1656:1–31, 2004.
- [21] R. Pievo, B. Angerstein, A.J. Fielding, C. Koch, I. Feussner, and M. Bennati. *ChemPhysChem*, 14:4094–4101, 2013.
- [22] M. Eigen and L. De Maeyer. "Relaxation Methods" in *Technique of Organic Chemistry, Part II*, volume 8, pages 895–1054. Wiley Interscience, New York, 2nd edition, 1963.
- [23] J. Kubelka. *Photochemical and Photobiological Sciences*, 8:499–512, 2009.
- [24] M. Azarkh and E.J.J. Groenen. *Journal of Physical Chemistry B*, 119:13416–13421, 2015.
- [25] J.A. Curcio and C.C. Petty. *Journal of the Optical Society of America*, 41:302–304, 1951.
- [26] L. Kou, D. Labrie, and P. Chylek. *Applied Optics*, 32:3531–3540, 1993.
- [27] K. Wang, W. Wen, Y. Wang, K. Wang, J. He, J. Wang, P. Zhai, Y. Yang, and P. Qiu. *Optics Express*, 25:5909–5916, 2017.
- [28] N.M. Atherton. *Principles of Electron Spin Resonance*. Ellis Horwood – PTR Prentice Hall, 1993.
- [29] A. Abragam and B. Bleaney. *Electron Paramagnetic Resonance of Transition Ions*. Oxford University Press, London, 1970.
- [30] F. Nami. *PhD thesis*, chapter 4. Leiden University, April 2017. ISBN 9789085932895.
- [31] S. Stoll and A. Schweiger. *Journal of Magnetic Resonance*, 178:42–55, 2006.
- [32] R. Aasa and T. Vänngård. *Journal of Magnetic Resonance*, 19:308–315, 1975.
- [33] J.H. Freed, G.V. Bruno, and C.F. Polnaszek. *Journal of Physical Chemistry A*, 75:3385–3399, 1971.
- [34] H. Blok, J.A.J.M Disselhorst, S.B. Orlinskii, and J. Schmidt. *Journal of Magnetic Resonance*, 166:92–99, 2004.

- [35] D.P. Ballou and G.A. Palmer. *Analytical Chemistry*, 46:1248–1253, 1974.
- [36] S. Oellerich, E. Bill, and P. Hildebrandt. *Applied Spectroscopy*, 54:1480–1484, 2000.
- [37] F. Nami, P. Gast, and E.J.J. Groenen. *Applied Magnetic Resonance*, 47:643–653, 2016.
- [38] V. Schuenemann, F. Lenzian, C. Jung, J. Contzen, A.L. Barra, S.G. Sligar, and A.X. Trautwein. *Journal of Biological Chemistry*, 279:10919–10930, 2004.
- [39] J. Manzerova, V. Krymov, and G.J. Gerfen. *Journal of Magnetic Resonance*, 213:32–45, 2011.
- [40] R. Kaufmann, I. Yadid, and D. Goldfarb. *Journal of Magnetic Resonance*, 230:220–226, 2013.
- [41] P.F. Lindley. *Reports on Progress in Physics*, 59:867–933, 1996.
- [42] F. Nami. *PhD thesis*, chapter 3. Leiden University, April 2017. ISBN 9789085932895.
- [43] G. Mathies, H. Blok, J.A.J.M. Disselhorst, H. van der Meer, D.M. Miedema, R.M. Almeida, J.J.G. Moura, W.R. Hagen, and E.J.J. Groenen. *Journal of Magnetic Resonance*, 210:126–132, 2011.
- [44] A. Potapov and D. Goldfarb. *Applied Magnetic Resonance*, 37:845–850, 2010.
- [45] D.E. Goldsack, W.S. Eberlein, and R.A. Alberty. *Journal of Biological Chemistry*, 240:4312–4315, 1965.
- [46] A.J. Hoff, editor. *Advanced EPR: Applications in Biology and Biochemistry*. Elsevier, Amsterdam, 1989.
- [47] A. Fersht. *“Structure and mechanism in protein science”*. W. H. Freeman and Company, New York, 1998.
- [48] H. Roder, K. Maki, and H. Cheng. *Journal of Molecular Biology*, 106:1836–1861, 2006.
- [49] E. Schubert, T. Hett, O. Schiemann, and Y. NejatyJahromy. *Journal of Magnetic Resonance*, 265:10–15, 2016.
- [50] K. Kirschner, M. Eigen, R. Bittman, and B. Voigt. *Proceedings of the National Academy of Sciences of the United States of America*, 56:1661–1667, 1966.
- [51] U. Mayor, C.M. Johnson, V. Daggett, and A.R. Fersht. *Proceedings of the National Academy of Sciences of the United States of America*, 97:13518–13522, 2000.

- [52] F.P. Cavasino. *The Journal of Physical Chemistry*, 69:4380–4386, 1965.
- [53] J.P. Kao and R.Y. Tsien. *Biophysical Journal*, 53:635–639, 1988.
- [54] R. Rigler, C.R. Rabl, and T.M. Jovin. *Review of Scientific Instruments*, 45:580–588, 1974.
- [55] J. Hofrichter. "Laser Temperature-Jump Methods for Studying Folding Dynamics" in *Protein structure, stability and folding*. Humana Press, Totowa, NJ, 2001.
- [56] H. Staerk and G. Czerlinski. *Nature*, 205:63–64, 1965.
- [57] H. Hoffmann, E. Yeager, and J. Stuehr. *Review of Scientific Instruments*, 39:649–653, 1968.
- [58] R. Rigler, A. Jost, and L. De Maeyer. *Experimental Cell Research*, 62:197–203, 1970.
- [59] W. A. Eaton, V. Muñoz, P.A. Thompson, E.R. Henry, and J. Hofrichter. *Accounts of Chemical Research*, 31:745–753, 1998.
- [60] W. A. Eaton, V. Muñoz, S.J. Hagen, G.S. Jas, L.J. Lapidus, E.R. Henry, and J. Hofrichter. *Annual Review of Biophysics and Biomolecular Structure*, 29:327–359, 2000.
- [61] R.B. Dyer. *Current Opinion in Structural Biology*, 17:38–47, 2007.
- [62] A. Ansari, S.V. Kuznetsov, and Y.Q. Shen. *Proceedings of the National Academy of Sciences of the United States of America*, 98:7771–7776, 2001.
- [63] R.H. Callender and R.B. Dyer. *Current Opinion in Structural Biology*, 12:628–633, 2002.
- [64] S.V. Kuznetsov, A.G. Kozlov, T.M. Lohman, and A. Ansari. *Journal of Molecular Biology*, 359:55–65, 2002.
- [65] O. Grinberg and L.J. Berliner, editors. "Very High Frequency (VHF) ESR/EPR" in *Biological Magnetic Resonance*, volume 22. Kluwer Academic/Plenum Publishers, New York, 2009.
- [66] A. Potapov and D. Goldfarb. *Applied Magnetic Resonance*, 37:845–850, 2010.
- [67] W.R. Couet, R.C. Brasch, C. Sosnovsky, J. Lukszo, I. Prakash, C.T. Gnewech, and T.N. Tozer. *Tetrahedron*, 41:1165–1172, 1985.
- [68] Y.C. Liu, Z.L. Liu, and Z.X. Han. *Reviews of Chemical Intermediates*, 10:269–289, 1988.
- [69] M. Shiga, Y. Miyazono, M. Ishiyama, K. Sasamoto, and K. Ueno. *Analytical Communications*, 34:115–117, 1997.

- [70] A.A. Bobko, I.A. Kirilyuk, I.A. Grigor'ev, J.L. Zweier, and V.V. Khramtsov. *Free Radical Biology and Medicine*, 42:404–412, 2007.
- [71] W.L. Hubbell, W. Froncisz, and J.S. Hyde. *Review of Scientific Instruments*, 58:1879–1886, 1987.
- [72] Y. Lin, W. Liu, H. Ohno, and T. Ogata. *Analytical Sciences*, 15:973–977, 1999.
- [73] M. Okazaki and K. Kuwata. *Journal of Physical Chemistry*, 89:4437–4440, 1985.
- [74] *Physical Properties of Glycerine and its Solutions*. Glycerine Producers' Association, New York, 1963.
- [75] N.A. Chumakova, V.I. Pergushov, A.K. Vorobiev, and A.I. Kokorin. *Applied Magnetic Resonance*, 39:409–421, 2010.
- [76] M.H. Vos and J.L. Martin. *Biochimica et Biophysica Acta*, 1411:1–20, 1999.
- [77] S.G. Mayhew. *European Journal of Biochemistry*, 85:535–547, 1978.
- [78] V.M. Grigoryants, A.V. Veselov, and C.P. Scholes. *Biophysical Journal*, 78:2702–2708, 2000.
- [79] G. Lassmann, P.P. Schmidt, and W. Lubitz. *Journal of Magnetic Resonance*, 172:312–323, 2005.
- [80] E.I. Solomon, A.J. Augustine, and J. Yoon. *Dalton Transactions*, 30:3921–3932, 2008.
- [81] P. Giardina, V. Faraco, C. Pezzella, A. Piscitelli, S. Vanhulle, and G. Sannia. *Cellular and Molecular Life Sciences*, 67:369–385, 2010.
- [82] I. Pardo and S. Camarero. *Cellular and Molecular Life Sciences*, 72:897–910, 2015.
- [83] M.C. Machczynski, E. Vijgenboom, B. Samyn, and G.W. Canters. *Protein Science*, 13:2388–2397, 2004.
- [84] T. Skálová, J. Dohnálek, L.H. Østergaard, P. Rahbek Østergaard, P. Kolenko, J. Dušková, A. Štěpánková, and J. Hašek. *Journal of Molecular Biology*, 385:1165–1178, 2009.
- [85] A.W.J.W. Tepper, S. Milikisyants, S. Sottini, E. Vijgenboom, E.J.J. Groenen, and G.W. Canters. *Journal of the American Chemical Society*, 131:11680–11682, 2009.
- [86] A. Gupta, I. Nederlof, S. Sottini, A.W.J.W. Tepper, E.J.J. Groenen, E.A.J. Thomassen, and G.W. Canters. *Journal of the American Chemical Society*, 134:18213–18216, 2012.

- [87] M.C. Machczynski and J.T. Babicz Jr. *Journal of Inorganic Biochemistry*, 159:62–69, 2016.
- [88] F. Nami. *PhD thesis*, chapter 1. Leiden University, April 2017. ISBN 9789085932895.
- [89] F. Nami. *PhD thesis*, chapter 6. Leiden University, April 2017. ISBN 9789085932895.
- [90] S. Sottini and E.J.J. Groenen. Unpublished results.
- [91] C. Scharnagl, M. Reif, and J. Friedrich. *Biochimica et Biophysica Acta*, 1749:187–213, 2005.

