

## References

- A.Joyce, D. (1990). D-Penicillamine. *Baillière's Clinical Rheumatology*, 4(3), 553–574. [https://doi.org/10.1016/S0950-3579\(05\)80007-X](https://doi.org/10.1016/S0950-3579(05)80007-X)
- A.Nafie, L. (1999). Vibrational CD Spectrometers. In J. C. Lindon (Ed.), *Encyclopedia of Spectroscopy and Spectrometry* (1st ed., pp. 2391–2402). Elsevier. <https://doi.org/10.1006/rwsp.2000.0319>
- Abdali, S., & Blanch, E. W. (2008). Surface enhanced Raman optical activity (SEROA). *Chemical Society Reviews*, 37, 980–992. <https://doi.org/10.1039/B707862P>
- Abram, M., Jakubiec, M., & Kamiński, P. K. (2019). Chirality as an Important Factor for the Development of New Antiepileptic Drugs. *ChemMedChem*, 14(20). <https://doi.org/10.1002/cmdc.201900367>
- Aktah, D., & Frank, I. (2002). Breaking bonds by mechanical stress: When do electrons decide for the other side? *Journal of the American Chemical Society*, 124(13), 3402–3406. <https://doi.org/10.1021/ja004010b>
- Ali, I., & Aboul-Enein, H. Y. (2007). *Chiral Pollutants: Distribution, Toxicity and Analysis by Chromatography and Capillary Electrophoresis* (1st ed.). Wiley.
- Atkins, P. W., & Barron, L. D. (1969). Rayleigh scattering of polarized photons by molecules. *Molecular Physics: An International Journal at the Interface Between Chemistry and Physics*, 16(5), 453–466. <https://doi.org/10.1080/00268976900100501>
- Bai, B., Svirko, Y., Turunen, J., & Vallius, T. (2007). Optical activity in planar chiral metamaterials: Theoretical study. *Physical Review A - Atomic, Molecular, and Optical Physics*, 76(023811), 1–12. <https://doi.org/10.1103/PhysRevA.76.023811>
- Banwell, C. N., & Mccash, E. M. (2017). *Fundamentals of molecular spectroscopy* (Fourth edi). McGraw Hill Education.
- Barron, L D, Blanch, E. W., & Hecht, L. (2002). Unfolded proteins studied by raman optical activity. 62, 51–90. [https://doi.org/10.1016/S0065-3233\(02\)62005-4](https://doi.org/10.1016/S0065-3233(02)62005-4)
- Barron, Laurence D. (2015). The development of biomolecular Raman optical activity spectroscopy. *Biomedical Spectroscopy and Imaging*, 4(3), 223–253. <https://doi.org/10.3233/bsi-150113>
- Barron, Laurence D. (2021). Symmetry and Chirality: Where Physics Shakes Hands with Chemistry and Biology. *Israel Journal of Chemistry*, 61(9–10), 517–529. <https://doi.org/10.1002/ijch.202100044>
- Barron, Laurence D., & Buckingham, A. D. (1971). Rayleigh and Raman scattering from optically active molecules. *Molecular Physicss: An International Journal at the Interface Between Chemistry and Physics*, 20(6), 1111–1119. <https://doi.org/10.1080/00268977100101091>
- Barron, Laurence D, Zhu, F., Hecht, L., Tranter, G. E., & Isaacs, N. W. (2007). Raman optical activity : An incisive probe of molecular chirality and biomolecular structure. 834–836, 7–16. <https://doi.org/10.1016/j.molstruc.2006.10.033>
- Barron, L. D., Bogaard, M. P., & Buckingham, A. D. (1973). Raman Scattering of Circularly Polarized Light by Optically Active Molecules. *J. Am. Chem. Soc.*, 95(2), 603–605. <https://doi.org/10.1021/ja00783a058>

- Bel, J. A. Le. (1874). Sur les Relations qui Existe entre les Formes Atomiques des Corps Organiques et le Pouvoir Rotatoire de Leurs Dissolutions. *Bull. Soc. Chim.*, 22, 337–347.
- Berova, N., Nakanishi, K., & Woody, R. W. (2000). *Circular Dichroism Principles and Applications* (2nd Edition). Wiley-VCH, A John Wiley and Sons Inc. Publication.
- Berthod, M., Mignani, G., Woodward, G., & Lemaire, M. (2005). Modified BINAP: The how and the why. *Chemical Reviews*, 105(5), 1801–1836. <https://doi.org/10.1021/cr040652w>
- Blaser, H. U. (2013). Chirality and its implications for the pharmaceutical industry. *Rend. Fis. Acc. Lincei*, 24(3), 213–216. <https://doi.org/10.1007/s12210-012-0220-2>
- Brakel, J. van. (2012). Substances: The Ontology of Chemistry. In A. I. Woody, R. F. Hendry, & P. Needham (Eds.), *Philosophy of Chemistry* (pp. 191–229). Elsevier B.V. <https://doi.org/10.1016/B978-0-444-51675-6.50018-9>
- Buda, A. B., Heyde, T. A. der, & Mislow, K. (1992). On Quantifying Chirality. *Angewandte Chemie International Edition in English*, 31(8), 989–1007. <https://doi.org/10.1002/anie.199209891>
- Brooks, W. H., Guida, W. C., & Daniel, K. G. (2011). The Significance of Chirality in Drug Design and Development. *Current Topics in Medicinal Chemistry*, 11(7), 760–770. <https://doi.org/10.2174/156802611795165098>
- Carter, H. A. (1996). The Chemistry of Paper Preservation Part 2. The Yellowing of Paper and Conservation Bleaching. *Journal of Chemical Education*, 73(11), 1068–1073. <https://doi.org/https://doi.org/10.1021/ed073p1068>
- Castiglioni, E., Abbate, S., & Longhi, G. (2011). Experimental methods for measuring optical rotatory dispersion: Survey and outlook. *Chirality*, 23(9), 711–716. <https://doi.org/10.1002/chir.20981>
- Ceramella, J., Iacopetta, D., Franchini, A., Luca, M. De, Saturnino, C., Andreu, I., Sinicropi, M. S., & Catalano, A. (2022). A Look at the Importance of Chirality in Drug Activity: Some Significative Examples. *Applied Sciences*, 12(21:10909), 1–22. <https://doi.org/10.3390/app122110909>
- Chattopadhyay, S., Raychaudhuri, U., & Chakraborty, R. (2014). Artificial sweeteners - a review. *J Food Sci Technol*, 51(4), 611–621. <https://doi.org/10.1007/s13197-011-0571-1>
- Chiu, M. H., Chen, C. Der, & Su, D. C. (1996). Method for determining the fast axis and phase retardation of a wave plate. *Optical Society of America*, 13(9), 1924–1929. <https://doi.org/10.1364/JOSAA.13.001924>
- Das, M., Gangopadhyay, D., Šebesti'k, J., Habartova, L., Michal, P., Kapitan, J., & Bour, P. (2021). Chiral detection by induced surface-enhanced Raman optical activity. *ChemComm*, 57, 6388–6391. <https://doi.org/10.1039/D1CC01504D>
- Degen, I. A., & Newman, G. A. (1993). Raman spectra of inorganic ions. *Spectrochimica Acta*, 49(5/6), 859–887. [https://doi.org/https://doi.org/10.1016/0584-8539\(93\)80110-V](https://doi.org/https://doi.org/10.1016/0584-8539(93)80110-V)
- Delly, J. G. (2008). *Essentials of Polarized light microscopy* (5th Ed.). College of Microscopy.
- Delly, John Gustav. (2017). *Essentials of Polarized Light Microscopy and Ancillary Techniques* (1st ed.). McCrone Group, Inc.
- Derewenda, Z. S. (2008). On wine, chirality and crystallography. *Acta Crystallographica. Section A, Foundations of Crystallography*, 64(1), 246–258. <https://doi.org/10.1107/S0108767307054293>

- Do, J. louis, & Friscic, T. (2017). Mechanochemistry: A Force of Synthesis. *ACS Central Science*, 3(1), 13–19. [https://doi.org/https://doi.org/10.1021/acscentsci.6b00277](https://doi.org/10.1021/acscentsci.6b00277)
- Dong, B., Song, W., Kong, X., Zhang, N., & Lin, W. (2019). Visualizing cellular sodium hydrosulfite ( $\text{Na}_2\text{S}_2\text{O}_4$ ) using azo-based fluorescent probes with a high signal-to-noise ratio. *Journal of Materials Chemistry B*, 7(5), 730–733. <https://doi.org/10.1039/c8tb02487a>
- Đorđević, L., Arcudi, F., D’Urso, A., Cacioppo, M., Micali, N., Bürgi, T., Purrello, R., & Prato, M. (2018). Design principles of chiral carbon nanodots help convey chirality from molecular to nanoscale level. *Nature Communications*, 9(3442), 1–8. <https://doi.org/10.1038/s41467-018-05561-2>
- Döring, A., Ushakova, E., & Rogach, A. L. (2022). Chiral carbon dots: synthesis, optical properties, and emerging applications. *Light: Science and Applications*, 11(75), 1–23. <https://doi.org/10.1038/s41377-022-00764-1>
- Duan, Y., Han, L., Zhang, J., Asahina, S., Huang, Z., Shi, L., Wang, B., Cao, Y., Yao, Y., Ma, L., Wang, C., Dukor, R. K., Sun, L., Jiang, C., Tang, Z., Nafie, L. A., & Che, S. (2015). Optically Active Nanostructured  $\text{ZnO}$  Films. *Angewandte Chemie - International Edition*, 54(50), 15170–15175. <https://doi.org/10.1002/anie.201507502>
- Dunitz, J. D. (1956). The structure of sodium dithionite and the nature of the dithionite ion. *Acta Crystallographica*, 9(7), 579–586. <https://doi.org/10.1107/s0365110x56001601>
- El-Bahrawi, M. S., Nagib, N. N., Khodier, S. A., & Sidki, H. M. (1998). Birefringence of muscovite mica. *Optics & Laser Technology*, 30(6–7), 411–415. [https://doi.org/10.1016/S0030-3992\(98\)00074-7](https://doi.org/10.1016/S0030-3992(98)00074-7)
- Encyclopaedia, T. E. of. (2023). *Joseph-Achille Le Bel*. Encyclopedia Britannica. <https://www.britannica.com/biography/Joseph-Achille-Le-Bel>
- Eriksson, T., Björkman, S., & Höglund, P. (2001). Clinical pharmacology of thalidomide. *European Journal of Clinical Pharmacology*, 57(5), 365–376. <https://doi.org/10.1007/s002280100320>
- Eyring, H., Liu, H.-C., & Caldwell, D. (1968). Optical rotatory dispersion and circular dichroism. *Chemical Reviews*, 68(5), 525–540. <https://doi.org/10.1021/cr60255a001>
- Feige, Matthias J. Braakman, Ineke and Hendershot, L. M. (2018). Disulphide Bonds in protein folding and stability. In M. J. Feige (Ed.), *Oxidative Folding of Proteins: Basic Principles, Cellular Regulation and Engineering* (pp. 1–33). The Royal Society of Chemistry.
- Fischer, P., & Hache, F. (2005). Nonlinear optical spectroscopy of chiral molecules. *Chirality*, 17, 421–437. <https://doi.org/10.1002/chir.20179>
- Fujisawa, T., & Unno, M. (2020). Vibrational optical activity spectroscopy. In V. P. Gupta & Y. Ozaki (Eds.), *Molecular and Laser Spectroscopy* (1st ed., pp. 41–82). Elsevier. <https://doi.org/10.1016/C2018-0-04226-7>
- Gal, J. (2011). Louis Pasteur, Language, and Molecular Chirality. I. Background and Dissymmetry. *Chirality*, 23(1), 1–16. <https://doi.org/10.1002/chir.20866>
- Gal, J. (2013). Molecular Chirality in Chemistry and Biology: Historical Milestones†. *Helvetica Chimica Acta*, 96(9), 1617–1657. <https://doi.org/10.1002/hlca.201300300>
- Galgano, G. D., & Henriques, A. B. (2005). Determining the fast axis of a wave plate. *Encontro*

- Nacional de Fisica Da Materia Condensada*, 1–3. <https://doi.org/10.13140/2.1.2192.9923>
- Gandhi, K. R., & Saadabadi, A. (2022). *Levodopa (L-Dopa)* (1st ed.). In StatPearls. StatPearls Publishing.
- Ghalsasi, P. P., Ghalsasi, P. S., & Shah, A. P. (2022). *Interference rings as a tool for observing optical handedness of chiral materials* (Patent No. 397376). Intellectual Patent India.
- Ghatak, A. (2017). *Optics* (Sixth). McGraw Hill Education India Private limited.
- Ghosh, A., Fazal, F. M., & Fischer, P. (2007). Circular differential double diffraction in chiral media. *Optics Letters*, 32(13), 1836–1838. <https://doi.org/10.1364/OL.32.001836>
- Ghosh, A., & Fischer, P. (2006). Chiral Molecules Split Light : Reflection and Refraction in a Chiral Liquid. *PHYSICAL REVIEW LETTERS*, 97(17), 173002(1-4). <https://doi.org/10.1103/PhysRevLett.97.173002>
- Gribble, C. D., & Hall, A. J. (1993). *Optical Mineralogy* (1st Ed). Chapman & Hall, Inc.
- Guijarro, A., & Yus, M. (2008). The Concept of Chirality. In *The Origin of Chirality in the Molecules of Life: A Revision from Awareness to the Current Theories and Perspectives of this Unsolved Problem* (1st ed., pp. 21–30). The Royal Society of Chemistry. <https://doi.org/10.1039/9781847558756-00021>
- Guohua, L., Li, J., & Li, Y. (1990). Determination of the fast axis with an infrared spectrometer for quartz and mica waveplates. *Applied Optics*, 29(13), 1870–1871. <https://doi.org/10.1364/AO.29.001870>
- Hanzlíková, J., Praus, P., & Baumruk, V. (1999). Raman optical activity spectrometer for peptide studies. *Journal of Molecular Structure*, 480–481, 431–435. [https://doi.org/10.1016/S0022-2860\(98\)00718-2](https://doi.org/10.1016/S0022-2860(98)00718-2)
- Harris, A., Kamien, R. D., & Lubensky, T. C. (1999). Molecular chirality and chiral parameters. *Reviews of Modern Physics*, 71(5), 1745–1757. <https://doi.org/10.1103/RevModPhys.71.1745x>
- Hecht, L., & Barron, L. D. (1994). Recent Developments in Raman Optical Activity Instrumentation. *Faraday Discussions*, 99, 35–47. <https://doi.org/10.1039/FD9949900035>
- Holder, C., & Schaak, R. (2019). Tutorial on Powder X-ray Diffraction for Characterizing Nanoscale Materials. *ACS Nano*, 13(7), 7359–7365. <https://doi.org/10.1021/acsnano.9b05157>
- Hodgeman, W. C., Weinrach, J. B., & Bennett, D. W. (1991). Spectroscopic Evidence for a Centrosymmetric Dithionite Anion in the Solid State: Vibrational Spectroscopy of Tetraethylammonium Dithionite. *Inorganic Chemistry*, 30(7), 1611–1614. <https://doi.org/10.1021/ic00007a035>
- Hodgson, W. G., Neaves, A., & Parker, C. A. (1956). Detection of Free Radicals in Sodium Dithionite by Paramagnetic Resonance. *Nature*, 178 (4531), 489–489. <https://doi.org/10.1038/178489a0>
- Hug, W., & Hangartner, G. (1999). A novel high-throughput Raman spectrometer for polarization difference measurements. *Journal of Raman Spectroscopy*, 30(9), 841–852. [https://doi.org/10.1002/\(sici\)1097-4555\(199909\)30:9<841::aid-jrs456>3.3.co;2-t](https://doi.org/10.1002/(sici)1097-4555(199909)30:9<841::aid-jrs456>3.3.co;2-t)

- Hug, W. (2006). Raman Optical Activity Spectroscopy. In *Handbook of Vibrational Spectroscopy* (pp. 745–758). <https://doi.org/10.1002/0470027320.s0504>
- Hu, Y., Yi, Z., Yang, H., & Xiao, J. (2013). A simple method to measure the thickness and order number of a wave plate. *European Journal of Physics*, 34(5), 1167–1173. <https://doi.org/10.1088/0143-0807/34/5/1167>
- Hu, Z. X., Song, W. N., Lu, X. D., Zhou, M. L., & Shao, J. H. (2018). Peripheral T lymphocyte immunity and l-dopamine in patients with Parkinson's disease. *Journal of Biological Regulators and Homeostatic Agents*, 32(3), 687–691.
- Hug, W. (2003). Virtual Enantiomers as the Solution of Optical Activity's Deterministic Offset Problem. *Applied Spectroscopy*, 57(1), 1–13. <https://doi.org/10.1366/000370203321165142>
- Hug, Werner, & Hangartner, G. (1999). A novel high-throughput Raman spectrometer for polarization difference measurements. *Journal of Raman Spectroscopy*, 30(9), 841–852. [https://doi.org/10.1002/\(sici\)1097-4555\(199909\)30:9<841::aid-jrs456>3.3.co;2-t](https://doi.org/10.1002/(sici)1097-4555(199909)30:9<841::aid-jrs456>3.3.co;2-t)
- Husain, S., & Rao, R. N. (1998). Monitoring of Process Impurities in Drugs. In *Advanced Chromatographic and Electromigration Methods in BioSciences* (1st Editio, pp. 60(833-888)). Elsevier Science. [https://doi.org/10.1016/S0301-4770\(08\)60317-6](https://doi.org/10.1016/S0301-4770(08)60317-6)
- Inaki, M., Liu, J., & Matsuno, K. (2016). Cell chirality: its origin and roles in left - right asymmetric development. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 371(1710)(20150403), 1–9. <https://doi.org/10.1098/rstb.2015.0403>
- Inoue, K. (2021). Chiral magnetism: Coupling Static and Dynamic Chirality. *Chemistry Letters*, 50(4), 742–751. <https://doi.org/10.1246/cl.200840>
- Iozzi, M. F., Helgaker, T., & Uggerud, E. (2011). Influence of external force on properties and reactivity of disulfide bonds. *The Journal of Physical Chemistry A*, 115, 2308–2315. <https://doi.org/10.1021/jp109428g>
- James, T. H., Cannon, C., Apblett, A., & Materer, N. F. (2015). Sodium Dithionite Purity and Decomposition Products in Solid Samples Spanning 50 Years. *Phosphorus , Sulfur , and Silicon*, 190, 158–169. <https://doi.org/10.1080/10426507.2014.914939>
- Jirgensons, B. (1965). The Cotton Effects in the Optical Rotatory Dispersion of Proteins as New Criteria of Conformation. *The Journal of Biological Chemistry*, 240(3), 1064–1071. [https://doi.org/10.1016/s0021-9258\(18\)97538-1](https://doi.org/10.1016/s0021-9258(18)97538-1)
- Kallenborn, R., & Hühnerfuss, H. (2001). Chiral Xenobiotics in the Environment: Trace Analysis and Ecotoxicology. In *Chiral Environmental Pollutants* (1st Ed., pp. 53–162). Springer, Berlin, Heidelberg. [https://doi.org/10.1007/978-3-662-06243-2\\_3](https://doi.org/10.1007/978-3-662-06243-2_3)
- Kerr, P. F. (1977). *Optical Mineralogy* (4th Ed). McGraw-Hill.
- Kiers, C. T., & Vos, A. (1978). The nature of the S–S bonds in different compounds. V. The crystal structure of ZnS<sub>2</sub>O<sub>4</sub>. Pyridine. *Acta Crystallographica, B34*, 1499–1504. <https://doi.org/10.1107/s0567740878005981>
- Kim, J. H., & Scialli, A. (2011). Thalidomide: The Tragedy of Birth Defects and the Effective Treatment of Disease. *Toxicological Sciences : An Official Journal of the Society of Toxicology*, 122(1), 1–6. <https://doi.org/10.1093/toxsci/kfr088>

- Knop, O., Boyd, R. J., & Choi, S. C. (1988). S-S Bond Lengths, or Can a Bond Length Be Estimated from a Single Parameter? *Journal of the American Chemical Society*, 110(22), 7299–7301. <https://doi.org/10.1021/ja00230a005>
- Kondepudi, D. K., & Durand, D. J. (2001). Chiral Asymmetry in Spiral Galaxies ? *Chirality*, 13(7), 351–356. <https://doi.org/10.1002/chir.1044>
- Krajnc, M., & Niemeyer, J. (2022). BINOL as a chiral element in mechanically interlocked molecules. *Bielstein Journal of Organic Chemistry*, 18(1), 508–523. <https://doi.org/10.3762/bjoc.18.53>
- Krätz, O. (1974). Das Portrait: Jacobus Henricus van't Hoff 1852–1911. *Chemie in Unserer Zeit*, 8(5), 135–142. <https://doi.org/10.1002/ciuz.19740080503>
- Landsberg, G., & Mandelstam, L. (1928). A novel effect of light scattering in crystals. *Naturwissenschaften*, 16, 557–558.
- Leszczynski, J., & Zerner, M. C. (1989). Molecular structure and vibrational spectra of Dithionite ion by ab initio calculations. *Chemical Physics Letters*, 159 (2, 3), 143–147. [https://doi.org/10.1016/0009-2614\(89\)87398-1](https://doi.org/10.1016/0009-2614(89)87398-1)
- Li, Z., Chen, D., He, T., & Liu, F. (2007). UV Near-Resonance Raman Spectroscopic Study of  $\text{1}^{\prime}, \text{1}^{\prime\prime}$ -Bi-2-naphthol Solutions. *J. Phys. Chem. A*, 111, 4767–4775. <https://doi.org/10.1021/jp070662b>
- Li, J., Zeng, Q., Liu, R., & Denidni, T. A. (2017). Beam-Tilting Antenna with Negative Refractive Index Metamaterial Loading. *IEEE Antennas and Wireless Propagation Letters*, 16(c), 2030–2033. <https://doi.org/10.1109/LAWP.2017.2694400>
- Lightner, C., Gisler, D., Meyer, S., Niese, H., Keitel, R., & Norris, D. J. (2021). Measurement of Raman Optical Activity with High-Frequency Polarization Modulation. *The Journal of Physical Chemistry A*, 125(36), 8132–8139. <https://doi.org/10.1021/acs.jpca.1c06132>
- Lin, J. Y., & Su, D. C. (2003). A new method for measuring the chiral parameter and the average refractive index of a chiral liquid. *Optics Communications*, 218(4–6), 317–323. [https://doi.org/10.1016/S0030-4018\(03\)01183-0](https://doi.org/10.1016/S0030-4018(03)01183-0)
- Ling, X., Chen, H., Zheng, W., Chang, L., Wang, Y., & Liu, T. (2020). Site-specific protein modification by genetic encoded disulfide compatible thiols. *Chinese Chemical Letters*, 31(1), 163–166. <https://doi.org/10.1016/j.cclet.2019.04.075>
- Litchinitser, N. M., Gabitov, I. R., Maimistov, A. I., & Shalaev, V. M. (2008). Chapter 1 Negative refractive index metamaterials in optics. *Progress in Optics*, 51, 1–67. [https://doi.org/10.1016/S0079-6638\(07\)51001-2](https://doi.org/10.1016/S0079-6638(07)51001-2)
- Luo, Y., Zeng, Q., Yan, X., Jiang, T., Yang, R., Wang, J., Wu, Y., Lu, Q., & Zhang, X. (2019). A graphene-based tunable negative refractive index metamaterial and its application in dynamic beam-tilting terahertz antenna. *Microwave and Optical Technology Letters*, 61(12), 2766–2772. <https://doi.org/10.1002/mop.31970>
- Liu, K. S., Tian, D. L., & Jiang, L. (2017). Frontier of Inorganic Synthesis and Preparative Chemistry (I) Biomimetic Synthesis. In *Modern Inorganic Synthetic Chemistry (Second Edition)* (Second Edi, pp. 687–721). Elsevier. <https://doi.org/10.1016/B978-0-444-63591-4.00024-0>
- Logofatu, P. C. (2002). Simple method for determining the fast axis of a wave plate. *Optical*

- Engineering*, 41(12), 3316–3318. <https://doi.org/10.1117/1.1519242>
- López, R., & Palomo, C. (2021). Planar Chirality: A Mine for Catalysis and Structure Discovery. *Angewandte Chemie International Edition*, 61(13). <https://doi.org/10.1002/anie.202113504>
- Magyarfalvi, G., Tarczay, G., & Vass, E. (2011). Vibrational circular dichroism. *Wires Computational Molecular Science*, 1(3), 403–425. <https://doi.org/10.1002/wcms.39>
- Magnusson, A., & Johansson, L. G. (1982). The Crystal Structure of Tin(II)Dithionite Sn<sub>2</sub>(S<sub>2</sub>O<sub>4</sub>)<sub>2</sub>. In *Acta Chemica Scandinavica A* (Vol. 36, pp. 429–433). <https://doi.org/10.3891/acta.chem.scand.36a-0429>
- Manteca, A., Caballero, Á. A., Fertin, M., Poly, S., De Sancho, D., & Perez-Jimenez, R. (2017). The influence of disulfide bonds on the mechanical stability of proteins is context dependent. *Journal of Biological Chemistry*, 292(32), 13374–13380. <https://doi.org/10.1074/jbc.M117.784934>
- Manyes, S. G., Liang, J., Szoszkiewicz, R., Kuo, T. L., & Fernández, J. M. (2009). Force-activated reactivity switch in a bimolecular chemical reaction. *Nature Chemistry*, 1(3), 236–242. <https://doi.org/10.1038/nchem.207>
- Mao, H. K., Bell, P. M., Shaner, J. W., & Steinberg, D. J. (1978). Specific volume measurements of Cu, Mo, Pd, and Ag and calibration of the ruby R1 fluorescence pressure gauge from 0.06 to 1 Mbar. *Journal of Applied Physics*, 49(6), 3276–3283. <https://doi.org/10.1063/1.325277>
- Mao, H. K., Xu, J., & Bell, P. M. (1986). Calibration of the Ruby Pressure Gauge to 800kbar Under Quasi-Hydrostatic Conditions. *Journal of Geophysical Research*, 91(B5), 4673–4676. [https://doi.org/https://doi.org/10.1029/JB091iB05p04673](https://doi.org/10.1029/JB091iB05p04673)
- Mislow, K., & Siegel, J. (1984). Stereoisomerism and Local Chirality. *Journal of the American Chemical Society*, 106(11), 3319–3328. <https://doi.org/10.1021/ja00323a043>
- Monzon, C., & Forester, D. W. (2005). Negative Refraction and Focusing of Circularly Polarized Waves in Optically Active Media. 123904(September), 1–4. <https://doi.org/10.1103/PhysRevLett.95.123904>
- Nafie, L. A., Keiderling, T. A., & Stephens, P. J. (1976). Vibrational circular dichroism. *Journal of the American Chemical Society*, 98(10), 2715–2723.
- Nafie, Laurence A., Che, D., Yu, G.-S., & Freedman, T. B. (1991). New experimental methods and theory of Raman optical activity. *Biomolecular Spectroscopy II, Proc. SPIE*, 37–49. <https://doi.org/10.1117/12.44207>
- Nafie, Laurence A. (2018). Overview of Vibrational Optical Activity. In *Vibrational Optical Activity: Principles and Applications* (1st ed., pp. 1–34). John Wiley& Sons, 2011.
- Nafie, Laurence A., Che, D., Yu, G., & Freedman, T. B. (1991). New experimental methods and theory of Raman Optical activity. 1432, 37–49.
- Nakamura, M., & Hashimoto, T. (2020). Mechanistic Insights into Plant Chiral Growth. *Symmetry*, 12(12), 2056 (1-10). <https://doi.org/10.3390/sym12122056>
- Neill, R. T. O., & Boulatov, R. (2021). The many flavours of mechanochemistry and its plausible conceptual underpinnings. *Nature Reviews Chemistry*, 5, pages148–167.

<https://doi.org/https://doi.org/10.1038/s41570-020-00249-y>

Nelson, S. A. (2014a). *Biaxial minerals*. Tulane University Mineralogy Department. <https://www.tulane.edu/~sanelson/eens211/biaxial.htm>

Nelson, S. A. (2014b). *Interference Phenomena, Compensation and optic sign*. Tulane University Mineralogy Department. [https://www.tulane.edu/~sanelson/eens211/interference\\_of\\_light.htm](https://www.tulane.edu/~sanelson/eens211/interference_of_light.htm)

Nelson, S. A. (2014c). *The isotropic indicatrix, Isotropic minerals, and the immersion method*. Tulane University Mineralogy Department. [http://www.tulane.edu/~sanelson/eens211/isotropic\\_minerals](http://www.tulane.edu/~sanelson/eens211/isotropic_minerals)

Nelson, S. A. (2014d). *Uniaxial Minerals, Uniaxial indicatrix Optic Sign, & Ray Path*. Tulane University Mineralogy Department. website:[https://www.tulane.edu/~sanelson/eens211/uniaxial\\_minerals.htm](https://www.tulane.edu/~sanelson/eens211/uniaxial_minerals.htm)

Nesse, W. D. (1991). *Introduction to Optical Mineralogy* (2nd Ed.). Oxford University Press Inc.

Newbronner, E., & Karl Atkin. (2017). The changing health of Thalidomide survivors as they age: A scoping review. *Disability and Health Journal*, 11(2), 184–191. <https://doi.org/10.1016/j.dhjo.2017.09.004>

Nguyen, L. A., He, H., & Pham-Huy, C. (2006). Chiral Drugs: An Overview. *International Journal of Biomedical Science*, 2(2), 85–100.

Nims, C., Cron, B., Wetherington, M., Macalady, J., & Cosmidis, J. (2019). Low frequency Raman Spectroscopy for micron-scale and in vivo characterization of elemental sulfur in microbial samples. *Scientific Reports*, 9(1)(7971), 1–12. <https://doi.org/10.1038/s41598-019-44353-6>

Nogueira, H. I. S., & Quintal, S. M. O. (2000). Surface-enhanced Raman scattering (SERS) studies on 1,1'-bi-2-naphthol. *Spectrochimica Acta - Part A*, 56(5), 959–964. [https://doi.org/10.1016/S1386-1425\(99\)00189-4](https://doi.org/10.1016/S1386-1425(99)00189-4)

Noyori, R., & Takaya, H. (1990). BINAP: An Efficient Chiral Element for Asymmetric Catalysis. *Accounts of Chemical Research*, 23(10), 345–350. <https://doi.org/10.1021/ar00178a005>

Ogawa, M., Murae, M., Gemba, R., Irie, T., Shimojima, M., Saijo, M., Noguchi, K., & Fukasawa, M. (2021). L-DOPA, a treatment for Parkinson's disease, and its enantiomer D-DOPA inhibit severe fever with thrombocytopenia syndrome virus infection in vitro. *Journal of Infection and Chemotherapy*, 28(3), 373–376. <https://doi.org/10.1016/j.jiac.2021.11.005>

Online, V. A., & Bour, P. (2014). *RSC Advances*. <https://doi.org/10.1039/C4RA10416A>

Ötvös, S. B., & Kappe, C. O. (2021). Continuous flow asymmetric synthesis of chiral active pharmaceutical ingredients and their advanced intermediates. *Green Chemistry*, 23, 6117–6138. <https://doi.org/10.1039/D1GC01615F>

Padilla, Willie J., Basov, Dimitri N., Smith, D. R. (2006). Negative Refractive Index Metamaterials. *Materialstoday*, 9(7–8), 28–35. <https://doi.org/10.5772/35153>

Pafomov, V. . E. (1959). Transition Radiation and Cerenkov Radiation. *Soviet Physics Jetp-*

*Ussr*, 9(6), 1321–1324.

- Passam, F. J., & Chiu, J. (2019). Allosteric disulphide bonds as reversible mechano-sensitive switches that control protein functions in the vasculature. *Biophysical Reviews*, 11(3), 419–430. <https://doi.org/10.1007/s12551-019-00543-0>
- Pendry, J. (2001). Electromagnetic materials enter the negative age. *Phys. World*, 14(9), 47–51.
- Pendry, J. B. (1998). Low frequency plasmons in thin-wire structures. *Journal of Physics Condensed Matter*, 10, 4785–4809. <https://doi.org/10.1088/0953-8984/28/48/481002>
- Pendry, J. B. (2004). A Chiral Route to Negative Refraction. *Science*, 306(1353). <https://doi.org/10.1126/science.1104467>
- Pendry, J B. (2000). Negative Refraction Makes a Perfect Lens. *PHYSICAL REVIEW LETTERS*, 85(18), 3966–3969.
- Pendry, J B, Holden, A. J., Robbins, D. J., & Stewart, W. J. (1999). *Magnetism from Conductors and Enhanced Nonlinear Phenomena*. 47(11), 2075–2084.
- Pendry, J B, & Ramakrishna, S. A. (2003). Refining the perfect lens. *Physica B*, 338, 329–332. <https://doi.org/10.1016/j.physb.2003.08.014>
- Pendry, J B, Schurig, D., & Smith, D. R. (2006). Controlling Electromagnetic Fields. *SCIENCE*, 312, 1780–1782.
- Pendry, John B, & Smith, D. R. (2004). Reversing Light With Negative Refraction. *Physics Today*, 57(6), 37–43. <https://doi.org/10.1063/1.1784272>
- Peter, L., & Meyer, B. (1982). The structure of the dithionite ion. *Journal of Molecular Structure*, 95, 131–139. [https://doi.org/https://doi.org/10.1016/0022-2860\(82\)90138-7](https://doi.org/https://doi.org/10.1016/0022-2860(82)90138-7)
- Plum, E., Fedotov, V. A., & Zheludev, N. I. (2008). Optical activity in extrinsically chiral metamaterial. *Appl. Phys. Lett.*, 93, 191911.
- Poel, W., Pintea, S., Drnec, J., Carla, F., Felici, R., Mulder.P., Elemans, J. A. A. W., Enckvort, W. J. P., Rowan, A. E., & Vlieg, E. (2014). Muscovite Mica: Flatter than a Pancake. *Surface Science*, 619, 19–24. <https://doi.org/10.1016/j.susc.2013.10.008>
- Polavarapu. Prasad L. (2002). Optical rotation: recent advances in determining the absolute configuration. *Chirality*, 14(10), 768–781.
- Prelog, V. (1976). Chirality in Chemistry. *Science*, 193(4247), 17–24. <https://doi.org/10.1126/science.935852>
- Rajan, R. P., & Ghosh, A. (2012a). Angular amplification by a diffraction grating for chiro-optical measurements. *Applied Optics*, 51(27), 6480–6483. <https://doi.org/10.1364/AO.51.006480>
- Rajan, R. P., & Ghosh, A. (2012b). Enhancement of circular differential deflection of light in an optically active medium. *Optics Letters*, 37(7), 1232–1234. <https://doi.org/10.1364/OL.37.001232>
- Raman, C. V., & Krishnan, K. S. (1928). A new type of secondary radiation. *Nature*, 121(3048), 501–502. <https://doi.org/10.1038/121501c0>

- Ribó, J. M. (2020). Chirality: The Backbone of Chemistry as a Natural Science. *Symmetry*, 12(12)(1982), 1–22. <https://doi.org/10.3390/sym12121982>
- Rice, B., Leblanc, L. M., Otero-De-La-Roza, A., Fuchter, M. J., Johnson, E. R., Nelson, J., & Jelfs, K. E. (2018). A computational exploration of the crystal energy and charge-carrier mobility landscapes of the chiral [6]helicene molecule. *Nanoscale*, 10(4), 1865–1876. <https://doi.org/10.1039/c7nr08890f>
- Rivera, G. A., Bueno, M., Vivas, D. B., & Cifuentes, A. (2020). Chiral analysis in food science. *TrAC Trends in Analytical Chemistry*, 123(115761), 1–65. <https://doi.org/10.1016/j.trac.2019.115761>
- Rostron, P., Gaber, S., & Gaber, D. (2016). Raman Spectroscopy , a review. *International Journal of Engineering and Technical Research (IJETR)*, 6(1), 50–64.
- S. Tretyakov, I. Nefedov, A. Sihvola, S. M., & C.Simovski, A. (2003). Waves and Energy in Chiral Nihility. *Journal of Electromagnetic Waves and Applications*, 17(5), 695–706.
- S.Siegel, J. (2009). *Jay S.Siegel. Angewandte Chemie - International Edition*. <https://doi.org/10.1002/anie.200903335>
- Saha, C., & Chakraborty, S. (2012). Dissymmetry and asymmetry: A hopeless conflict in chemical literature. *Resonance*, 17, 768–778. <https://doi.org/10.1007/s12045-012-0087-7>
- Sandage, A., & Bedke, J. (1994). *The Carnegie Atlas of Galaxies* (Volume 1). Carnegie Institution of Washington.
- Sandage, A., Bedke, J., & Van Den Bergh, S. (1995). *The Carnegie Atlas of Galaxies, Volumes 1 and 2. Physics Today*, 48(6), 55–55. <https://doi.org/10.1063/1.2808064>
- Sanganyado, E., Lu, Z., Fu, Q., Schlenk, D., & Gan, J. (2017). Chiral pharmaceuticals: A review on their environmental occurrence and fate processes. *Water Research*, 124, 527–542. <https://doi.org/10.1016/j.watres.2017.08.003>
- Sato, H. (2020). A new horizon for vibrational circular dichroism spectroscopy: a challenge for supramolecular chirality. *Physical Chemistry Chemical Physics*, 22, 7671–7679.
- Segura-Aguilar, J., Paris, I., Muñoz, P., Ferrari, E., Zecca, L., & Zucca, F. A. (2014). Protective and toxic roles of dopamine in Parkinson's disease. *Journal of Neurochemistry*, 129(6), 898–915. <https://doi.org/10.1111/jnc.12686>
- Shah, A., & Ghalsasi, P. (2019). Use of interference colours to distinguish between fast and slow axes of a quarter wave plate. *European Journal of Physics*, 40(065301), 1–19. <https://doi.org/10.1088/1361-6404/ab2fef>
- Shah, A., Ghalsasi, P. S., & Ghalsasi, P. (2022). Effect of quasi hydrostatic and non hydrostatic pressure on long S–S bonded sodium dithionite ( Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>): A Raman Spectroscopic study. *Journal of Solid State Chemistry*, 313(123315), 1–8. <https://doi.org/10.1016/j.jssc.2022.123315>
- Shah, A., & Ghalsasi, P. (2022). Negative Refractive Index Metamaterials- Introduction and Methods to produce Achiral and Chiral Metamaterials. *Interwoven: An Interdisciplinary Journal of Navrachana University*, 5(2), 1–32.
- Sharma, A., Amarnath, S., Thulasimani, M., & S. Ramaswamy. (2016). Artificial sweeteners as a sugar substitute: Are they really safe? *Indian Journal of Pharmacology*, 48(3), 237–

240. <https://doi.org/10.4103/0253-7613.182888>
- Sharma, V., Crne, M., Park, J. O., & Mohan Srinivasarao. (2009). Structural origin of circularly polarized iridescence in jeweled beetles. *Science*, 325(5939), 449–451. <https://doi.org/10.1126/science.1172051>
- Shelby, R. A., Smith, D. R., & Schultz, S. (2001). Experimental verification of a Negative index of Refraction. *Science*, 292, 77–79. <https://doi.org/10.1126/science.1058847>
- Shimoaka, T., Sonoyama, M., Amii, H., Takagi, T., Kanamori, T., & Hasegawa, T. (2019). Raman Optical Activity on a Solid Sample: Identification of Atropisomers of Perfluoroalkyl Chains Having a Helical Conformation and No Chiral Center. *The Journal of Physical Chemistry A*, 123(18), 3985–3991. <https://doi.org/10.1021/acs.jpca.8b11613>
- Singh, G., & Marwaha, A. (2015). *A Review of Metamaterials and its Applications ISSN : 2231-5381*. 19(6), 305–310.
- Smekal, A. (1923). Zur Quantentheorie der Dispersion. *Naturwissenschaften*, 11, 873–875. <https://doi.org/10.1007/BF01576902>
- Smith, D. R., Padilla, W. J., Vier, D. C., & Schultz, S. (2000). Composite Medium with Simultaneously Negative Permeability and Permittivity. *PHYSICAL REVIEW LETTERS*, 84(18), 1–4.
- Smith, D. R., Pendry, J. B., & Wiltshire, M. C. K. (2004). Metamaterials and Negative Refractive Index. *SCIENCE*, 305, 788–792.
- Snatzke, G. (1968). Circular Dichroism and Optical Rotatory Dispersion — Principles and Application to the Investigation of the Stereochemistry of Natural Products†. *Angewandte Chemie International Edition in English*, 7(1), 14–25. <https://doi.org/10.1002/anie.196800141>
- Solomons, T. W. G., Fryhle, C. B., & Fryhle, C. B. (2017). *Solomons' Organic Chemistry* (12th Editi). John Wiley & Sons.
- Song, Y., Liu, Z., Mao, H. kwang, & Hemley, R. J. (2005). High-pressure vibrational spectroscopy of sulfur dioxide. *THE JOURNAL OF CHEMICAL PHYSICS*, 122, 174511(1-9). <https://doi.org/https://doi.org/10.1063/1.1883405>
- Spencer, K. M., Freedman, T. B., & Nafie, L. A. (1988). Scattered circular polarization Raman optical activity. *Chemical Physics Letters*, 149(4), 367–374. [https://doi.org/10.1016/0009-2614\(88\)85109-1](https://doi.org/10.1016/0009-2614(88)85109-1)
- Stephanou, E. G. (2007). A forest air of chirality. *Nature*, 446, 991. <https://doi.org/10.1038/446991a>
- Suarez-Almazor, M. E., Belseck, E., & Carol Spooner. (2000). Penicillamine for treating rheumatoid arthritis. *Cochrane Database of Systematic Reviews*, 4, 1–3. <https://doi.org/10.1002/14651858.CD001460>
- Subrahmanyam, N., Lal, B., & Avadhanulu, M. N. (2010). *A textbook of Optics* (24th ed.). S.Chand & Co Ltd.
- Swanson, B. I., Babcock, L. M., Schiferl, D., Moody, D. C., Mills, R. L., & Ryan, R. (1982). Raman study of SO<sub>2</sub>, at high pressure. Aggregation, phase transformations, and photochemistry. *Chemical Physics Letters*, 91(5), 393–395. [https://doi.org/https://doi.org/10.1016/0009-2614\(82\)83307-1](https://doi.org/https://doi.org/10.1016/0009-2614(82)83307-1)

- Ramakrishna, S. A., & Grzegorczyk, T. M. (2009). Physics and applications of negative refractive index materials. In *Physics and Applications of Negative Refractive Index Materials*. <https://doi.org/10.1201/9781420068764>
- Rinker, R. G., Gordan, T., Mason, D. M., & Corcoran, W. H. (1959). The presence of the SO<sub>2</sub>- radical ion in aqueous solutions of sodium dithionite. *J. Phys. Chem.*, 63(2), 302–302. <https://doi.org/10.1021/j150572a042>
- Rintoul, L., Crawford, K., Shurvell, H. F., & Fredericks, P. M. (1997). Surface-enhanced Raman scattering of inorganic oxoanions. *Vibrational Spectroscopy*, 15(2), 171–177. [https://doi.org/10.1016/S0924-2031\(97\)00034-9](https://doi.org/10.1016/S0924-2031(97)00034-9)
- Rivera, G. A., Bueno, M., Vivas, D. B., & Cifuentes, A. (2020). Chiral analysis in food science. *TrAC Trends in Analytical Chemistry*, 123(115761), 1–65. <https://doi.org/10.1016/j.trac.2019.115761>
- Robinson, P. C., & Davidson, M. W. (n.d.). *Polarized light microscopy*. Retrieved from Nikon Website: (“Molecular Expressions at Florida State University”). <https://www.microscopyu.com/techniques/polarized-light/polarized-light-microscopy>
- Takahashi, H., Kaneko, N., & Miwa, K. (1982). Raman and infrared studies of the structure of the dithionite ion in aqueous solution and force-constants of S<sub>2</sub>O<sub>x</sub><sup>2-</sup> type ions. *Spectrochimica Acta*, 38A(11), 1147–1153. [https://doi.org/10.1016/0584-8539\(82\)80155-4](https://doi.org/10.1016/0584-8539(82)80155-4)
- Tartaric acid*. (n.d.). In Wikipedia. [https://en.wikipedia.org/wiki/Tartaric\\_acid](https://en.wikipedia.org/wiki/Tartaric_acid)
- Tokunaga, E., Yamamoto, T., & Ito, E. (2018). Understanding the Thalidomide Chirality in Biological Processes by the Self-disproportionation of Enantiomers. *Scientific Reports*, 8(1). <https://doi.org/10.1038/s41598-018-35457-6>
- Tretyakov, S., Sihvola, A., & Jylhä, L. (2005). Backward-wave regime and negative refraction in chiral composites. *Photonics and Nanostructures - Fundamentals and Applications*, 3(2–3), 107–115. <https://doi.org/10.1016/j.photonics.2005.09.008>
- Van't Hoff, J. H. (1874). A Suggestion Looking to the Extension Into Space of the Structural Formulas at Present Used in Chemistry, and a Note Upon the Relation Between the Optical Activity and the Chemical Constitution of Organic Compounds. *Archives Neerlandaises Des Sciences Exactes et Naturelles*, 9, 445–454.
- Vandenabeele, P. (2013). Theoretical Aspects. In *Practical Raman Spectroscopy: An Introduction* (first, pp. 1–38). wiley. <https://doi.org/10.1002/9781119961284>
- Vasilescu, D., & Adrian-Scotto, M. (2010). From Democritus to Schrödinger: A reflection on quantum molecular modeling. *Structural Chemistry*, 21(6), 1289–1314. <https://doi.org/10.1007/s11224-010-9665-z>
- Vegunta, V. L. (2016). *A study on the thermal stability of sodium dithionite using ATR-FTIR spectroscopy*. June, 272.
- Veselago, V., Braginsky, L., Shklover, V., & Hafner, C. (2006). Negative Refractive Index Materials. *J. Comput. Theor. Nanosci*, 3(2), 1–30. <https://doi.org/10.1166/jctn.2006.002>
- Veselago, V. G. (1968). THE ELECTRODYNAMICS OF SUBSTANCES WITH SIMULTANEOUSLY NEGATIVE VALUES OF  $\epsilon$  AND  $\mu$ . *Soviet Physics Uspekhi*, 10, 509–514. <https://doi.org/10.1070/PU1968v010n04ABEH003699>
- Vries, J. G. d., & Kellogg, R. M. (1980). Reduction of Aldehydes and Ketones by Sodium

- Dithionite. *Journal of Organic Chemistry*, 45(21), 4126–4129. <https://doi.org/10.1021/jo01309a011>
- Wagnière, G. H. (2007). On Chirality and the Universal Asymmetry. Reflections on Image and Mirror Image. *Angewandte Chemie International Edition*, 119(48), 9303–9304. <https://doi.org/10.1002/ange.200785549>
- Walker, J., Halliday, D., & Resnick, R. (n.d.). *PRINCIPLES OF PHYSICS* (10th ed.). Wiley.
- Wang, B., Zhou, J., Koschny, T., & Soukoulis, C. M. (2009). Nonplanar chiral metamaterials with negative index. *Applied Physics Letters*, 94, 151112 (1-3). <https://doi.org/10.1063/1.3120565>
- Weinrach, J. B., Meyer, D. R., Guy, J. T., Michalski, P. E., Carter, K. L., Grubisha, D. S., & Bennett, D. W. (1992). A structural study of sodium dithionite and its ephemeral dihydrate: A new conformation for the dithionite ion. *Journal of Crystallographic and Spectroscopic Research*, 22(3), 291–301. <https://doi.org/10.1007/BF01199531>
- Westbroek, P., Govaert, F., Gasana, E., Temmerman, E., & Kiekens, P. (1999). Possibilities to measure the concentration of sodium dithionite in textile applications by means of amperometric sensors. *AUTEX Research Journal*, 1(1), 30–38.
- Wiedemann, C., Kumar, A., Lang, A., & Ohlenschläger, O. (2020). Cysteines and Disulfide Bonds as Structure-Forming Units: Insights From Different Domains of Life and the Potential for Characterization by NMR. *Frontiers in Chemistry*, 8(April), 1–8. <https://doi.org/10.3389/fchem.2020.00280>
- Wiita, A. P., Ainavarapu, S. R. K., Huang, H. H., & Fernandez, J. M. (2006). Force-dependent chemical kinetics of disulfide bond reduction observed with single-molecule techniques. *Proceedings of the National Academy of Sciences of the United States of America*, 103(19), 7222–7227. <https://doi.org/10.1073/pnas.0511035103>
- Wilson, J. E., & Vigneaud, V. Du. (1948). L-Penicillamine as a Metabolic Antagonist. *Science*, 107(2790), 653. <https://doi.org/10.1126/science.107.2790.653>
- Wisniak, J. (2002). Joseph Achille Le Bel. His Life and Works. *Revista CENIC. Ciencias Químicas*, 33(1), 35–43.
- Wong, M. L. (1994). Polarizability and tensor ellipsoid in the Raman effect. *Vibrational Spectroscopy*, 7(2), 197–199. [https://doi.org/10.1016/0924-2031\(94\)85031-3](https://doi.org/10.1016/0924-2031(94)85031-3)
- W.Woody, R. (1995). Circular dichroism. *Methods in Enzymology*, 246, 34–71. [https://doi.org/https://doi.org/10.1016/0076-6879\(95\)46006-3](https://doi.org/https://doi.org/10.1016/0076-6879(95)46006-3)
- Woolf, A. D. (2022). Thalidomide tragedy, 1950s. In *History of Modern Clinical Toxicology* (1st ed., pp. 165–175). Academic Press. <https://doi.org/10.1016/B978-0-12-822218-8.00058-2>
- Wu, X., Huang, C., Chen, D., Liu, D., Wu, C., Chou, K.-J., Zhang, B., Wang, Y., Liu, Y., Li, E. Y., Zhu, W., & Chou, P. (2020). Exploiting racemism enhanced organic room-temperature phosphorescence to demonstrate Wallach's rule in the lighting chiral chromophores. *Nature Communications*, 11(2145), 1–10. <https://doi.org/10.1038/s41467-020-15976-5>
- Yamamoto, S., & Watarai, H. (2010). Incident circularly polarized Raman optical activity spectrometer based on circularity conversion method. *Journal of Raman Spectroscopy*,

41, 1664–1669. <https://doi.org/10.1002/jrs.2616>

Yan, Y. C., & He, L. (2008). Neuroprotective Effects of Sinapine on PC12 Cells Apoptosis Induced by Sodium Dithionite. *Chinese Journal of Natural Medicines*, 6(3), 205–209. [https://doi.org/10.1016/s1875-5364\(09\)60018-2](https://doi.org/10.1016/s1875-5364(09)60018-2)

Yang, G., Li, J., Liu, Y., Lowary, T. L., & Xu, Y. (2010). Determination of the absolute configurations of bicyclo[3.1.0]hexane derivatives via electronic circular dichroism, optical rotation dispersion and vibrational circular dichroism spectroscopy and density functional theory calculations. *Organic & Biomolecular Chemistry*, 8, 3777–3783. <https://doi.org/10.1039/C002655G>

Yu, H.-B., Hu, Q.-S., & Pu, L. (2000). The First Optically Active BINOL-BINAP Copolymer Catalyst: Highly stereoselective tandem asymmetric reactions. *J. Am. Chem. Soc*, 122(27), 6500–6501. <https://doi.org/10.1021/ja000778k>

Zhang, C., Wang, X., & Qiu, L. (2021). Circularly Polarized Photodetectors Based on Chiral Materials: A Review. *Frontiers in Chemistry*, 9, 1–18. <https://doi.org/10.3389/fchem.2021.711488>

Zhang, S., Li, J., Lu, X., Zhang, W., & Zhang, X. (2009). *Negative Refractive Index in Chiral Metamaterials*. 023901(January), 1–4. <https://doi.org/10.1103/PhysRevLett.102.023901>

Zhang, W., Zhang, S., Guo, D., Zhao, L., Yu, L., Zhang, H., & He, Y. (2019). Great Concern for Chiral Pharmaceuticals from the Thalidomide Tragedy. *University Chemistry*, 34(9), 1–12. <https://doi.org/10.3866/PKU.DXHX201904021>

Zhang, X., Wu, F., Qi, L., Zhang, X., & Hao, D. (2014). *Birefringence of Muscovite Mica plate: Temperature effect in the Ultraviolet and Visible spectrum*. <https://doi.org/10.48550/arXiv.1412.4559>

Zhang, H., Toth, O., Liu, X. di, Bini, R., Gregoryanz, E., Dalladay-Simpson, P., Panfilis, S. De, Santoro, M., Gorelli, F. A., & Martonak, R. (2020). Pressure-induced amorphization and existence of molecular and polymeric amorphous forms in dense SO<sub>2</sub>. *Proceedings of the National Academy of Sciences*, 117(16), 8736–8742. <https://doi.org/10.1073/pnas.1917749117>

Zhang, J. B., Zhang, H., Wang, H. L., Zhang, J. Y., Luo, P. J., Zhu, L., & Wang, Z. T. (2014). Risk Analysis of Sulfites Used as Food Additives in China. *Biomedical and Environmental Sciences*, 27(2), 147–154. <https://doi.org/10.3967/bes2014.032>

Zhao, R., Koschny, T., & Soukoulis, C. M. (2010). Chiral metamaterials: retrieval of the effective parameters with and without substrate. *Optics Express*, 18(14), 14553–14567.

Zhou, J., Dong, J., Wang, B., Koschny, T., Kafesaki, M., & Soukoulis, C. M. (2009). Negative refractive index due to chirality. *PHYSICAL REVIEW B*, 79(121104), 1–5.

Zhou, Y., Wu, S., Zhou, H., Huang, H., Zhao, J., Deng, Y., Wang, H., Yang, Y., Yang, J., & Luo, L. (2018). Chiral pharmaceuticals: Environment sources, potential human health impacts, remediation technologies and future perspective. *Environment International*, 121, 523–537. <https://doi.org/10.1016/j.envint.2018.09.041>

Zhu, D.-Y., Chen, P., & Xia, J.-B. (2016). Synthesis of Planar Chiral Ferrocenes by Transition-Metal-Catalyzed Enantioselective C–H Activation. *ChemCatChem*, 8(1), 68–73. <https://doi.org/10.1002/cctc.201500895>

