

Alan Davison

Curriculum Vitae and Bibliography

Alan Davison
Curriculum Vitae

Date of Birth: 24 March 1936
Date of Death: 24 November 2015
Place of Birth: Ealing, United Kingdom
Nationality: US (naturalized 2001)

Education:

1959 B.Sc. in Chemistry, University College of Swansea, UK
1962 Ph.D. in Chemistry, Imperial College of Science and Technology, UK
1962 D.I.C. in Chemistry, Imperial College of Science and Technology, UK

Academic Appointments:

1962-1964 Instructor in Chemistry, Harvard University, Cambridge, MA
1964-1967 Assistant Professor of Chemistry, MIT, Cambridge, MA
1967-1974 Associate Professor of Chemistry, MIT, Cambridge, MA
1974-2005 Professor of Chemistry, MIT, Cambridge, MA
2005-2015 Professor Emeritus, MIT Cambridge MA

Honours:

1967-1969 Alfred P. Sloan Foundation Fellow
1990 Honorary Fellowship, University College of Swansea, UK
1990 Herbert M. Stauffer Award for Outstanding Laboratory Paper, "Comparative Myocardial Binding Characteristics of Hexakis (alkylisonitrile)technetium(I) Complexes: Effect of Lipophilicity", Invest. Radiol., 1989, 24: 25
1993 Paul C. Aebersold Award for Outstanding Achievement in Basic Science Applied to Nuclear Medicine
1998 Medal, University of Padua, "Contributions in the Chemistry of Technetium and its Application to Medicine"
1999 Ernest H. Swift Lectureship, California Institute of Technology
2000 Fellow of the Royal Society London
2006 American Chemical Society, Award for Chemical Invention
2006 Jacob Heskel Award, Brandeis University, Award Lectures in Biotechnology and Medicine
2006 Wallace H. Carothers Award
2009 Society of Nuclear Medicine, Georg Charles de Hevesy Nuclear Pioneer Award

Major Research Interests:

Technetium and Rhenium chemistry, radiopharmaceutical chemistry, and bioinorganic chemistry

Publications

- (1) 1960 Davison, A., Wilkinson, G. Protonation of transition metal carbonyl complexes. *Proc. Chem. Soc.*, 356.
- (2) 1961 Davison, A., McFarlane, W., Pratt, L., Wilkinson, G. Protonation of olefin metal complexes, π -bonded carbonium complex Ions. *Chem. Indust.*, 553.
- (3) Davison, A., Green, M.L.H., Wilkinson, G. π -cyclopentadienyl and cyclopentadiene-iron carbonyl complexes. *J. Chem. Soc.*, 3172-3177.
- (4) 1962 Davison, A., McFarlane, W., Wilkinson, G. The specific hydrogenation of cyclo-octatetraene iron tricarbonyl. *Chem. Indust.*, 820.
- (5) Davison, A., McFarlane, W., Pratt, L., Wilkinson, G. The formation of metal-hydrogen bonds in the protonation of transition-metal-carbonyl complexes. *J. Chem. Soc.*, 0; 3653-3666.
- (6) Davison, A., McFarlane, W., Pratt, L., Wilkinson, G. Protonation of tricarbonyl-cyclooctatetraene iron and some related compounds. *J. Chem. Soc.*, 4821.
- (7) 1963 Davison, A., McCleverty, J.A., Wilkinson, G. Spectroscopic studies on alkyl and hydrido transition metal carbonyls and π -cyclopentadienyl carbonyls. *J. Chem. Soc.*, 1133.
- (8) Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. ESR Studies of four-coordinate complexes of nickel, palladium and platinum related by electron transfer reactions. *J. Am. Chem. Soc.*, 85: 2029-2030.
- (9) Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. The preparation and characterization of four-coordinate complexes related by electron transfer reactions. *Inorg. Chem.*, 2: 1227-1232.
- (10) Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. Concerning the existence of high-spin planar cobaltous complexes: Bis(1,2-dicyanomaleonitriledithiolato) cobalt(II) dianion. *J. Am. Chem. Soc.*, 85: 3049-3050.
- (11) 1964 Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. Further examples of complexes related by electron-transfer reactions: Complexes derived from bis(trifluoromethyl)-1,2-dithietene. *Inorg. Chem.*, 3: 814-823.
- (12) Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. Synthetic and electron spin resonance studies of six-coordinate complexes related by electron-transfer reactions. *J. Am. Chem. Soc.*, 86: 2799-2805.
- (13) Maki, A.H., Edelstein, N., Davison, A., Holm, R.H. Electron paramagnetic resonance studies of the electronic structures of bis(meleonitriedithiolato)copper(II), -nickel(III), -cobalt(II), and -rhodium(II) complexes. *J. Am. Chem. Soc.*, 86: 4580-4587.
- (14) 1965 Davison, A., Edelstein, N., Holm, R.H., Maki, A.H. Synthetic and paramagnetic resonance studies of trigonal vanadium complexes. *Inorg. Chem.*, 4: 55-59.
- (15) Davison, A., Howe, D.V. A new synthesis of phosphine substituted *cis*-1,2-disubstitutedethylene-1,2-dithiolate complexes and some related reactions. *Chem. Comm.*, 290-291.
- (16) Davison, A., Wilkinson, G. The Reduction of bis-triphenylphosphine-tricarbonyl-cobalt(I) Salts. *J. Chem. Soc.*, 3890.
- (17) 1966 Farrar, T.C., Sr., Ryan, W., Davison, A., Faller, J.W., Jr. Manganese-hydrogen bond distance in HMn(CO)₅. *J. Am. Chem. Soc.*, 88: 184-185.
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- (19) Bennett, M.J., Cotton, F.A., Davison, A., Faller, J.W., Jr., Lippard, S.J., Morehouse, S.M. Stereochemically nonrigid organometallic compounds. I. π -cyclopentadienyliron carbonyl dicarbonyl σ -cyclopentadiene. *J. Am. Chem. Soc.*, 88: 4371-4376.

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- (21) 1967 Davison, A., Holm, R.H. Metal complexes derived from *cis*-1,2-cyanoethylene-1,2-dithiolate and bis-(perfluoromethyl)-1,2-diethetene in *Inorganic Syntheses*, Vol. X. McGraw-Hill: New York, 8.
- (22) Farrar, T.C., Brinckman, F.E., Coyle, T.D., Davison, A., Faller, J.W. A broad-line proton magnetic resonance study of cobalt tetracarbonyl hydride. *Inorg. Chem.*, 6: 161-163.
- (23) Davison, A., Howe, D.V., Shawl, E.T. New synthetic studies on four-coordinate complexes derived from bis-(trifluoromethyl)-1,2-dithietene and some related reactions. *Inorg. Chem.*, 6: 458-463.
- (24) Faller, J.W., Davison, A. Stereochemically nonrigid organometallic compounds. V. Configurational equilibria in bis(acetylacetone)tin complexes. *Inorg. Chem.*, 6: 182-184.
- (25) Davison, A., McCleverty, J.A., Shawl, E.T., Wharton, E.J. Ligand exchange reactions of bis(*cis*-1,2-disubstituted-1,2-dithiolato)-metal complexes. *J. Am. Chem. Soc.*, 89: 830-832.
- (26) Davison, A., Faller, J.W. The Raman spectra of manganese and rhenium carbonyl hydrides and some related species. *Inorg. Chem.*, 6: 845-847.
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- (29) Davison, A., Rode, W.C. Stereochemically nonrigid organometallic compounds. VI. Configurational equilibria of π -C₅H₅Mo(CO)₂ allyl complexes. *Inorg. Chem.*, 6: 2124-2125.
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- (46) 1971 Davison, A., Switkes, E.S. The stereochemistry of four-coordinate Bis-imidodiphosphinato Metal (II) Chelate Complexes. *Inorg. Chem.*, 10: 837-842.
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- (63) Churchill, M.R., Hackbarth, J.J., Davison, A., Traficante, D.D., Wreford, S.S. Oxidative addition of pentaborane(9) and bromopentaborane(9): The crystal structure of 2-[IrBr₂(CO)(PMe₃)₂]B₅H₈. *J. Am. Chem. Soc.*, 96: 4041-4042.
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Inventions and Patents

1. Jones, A.G., Abrams, M.J., Davison, A. "Isonitrile radionuclide complexes for labeling and imaging agents"

US Patent No. 4,452,774 Filed: 4/30/82 Issued: 6/5/84

Greek Patent No. 77,476 Issued: 5/27/83

Canadian Patent No. 1,218,666 Issued: 3/3/87

Italian Patent No. 1,168,943 Issued: 5/20/87

European Patent No. 0 107 734 Issued: 7/29/87 Patents have issued in all European countries designated in the EPO application, including Austria, Belgium, France, W Germany, Luxembourg, The Netherlands, Sweden, Switzerland (Lichtenstein), and the United Kingdom. All have the same EPO number, except W. Germany (P 33 72 709.0-08). Patents applied for: Australia and Japan Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology

2. Davison, A., Brenner, D., Lister-James, J., Jones, A.G. "Bisamide bisthiol compounds useful for making technetium radio diagnostic renal agents"

US Patent No. 4,673,562 Filed: 4/19/83 Issued: 6/16/87

European Patent No. 0 135 160 Filed: 8/17/84 Issued: 4/26/89

Greek Patent No. 80069 Issued: 8/9/84

Patents applied for in the countries designated in (1) above.

Assignees: The President and Fellows of Harvard College, the Massachusetts Institute of Technology, and Children's Hospital Corporation

3. Jones, A.G., Davison, A., Abrams, M.J. "Metal-isonitrile adducts for preparing radionuclide complexes for labeling and imaging agents"

US Patent No. 4,707,544 Filed: 11/28/84 Issued: 11/17/87

Divisional application filed 2/22/87

Canadian Patent No. 1,249,998 Filed 10/18/85 Issued: 2/14/89

Patents applied for in the countries designated in (1) above.

Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology

4. Jones, A.G., Lister-James, J., Davison, A. "Technetium radio diagnostic fatty acids derived from bisamide bithiol ligands"

US Patent No. 4,746,505 Filed: 4/26/85 Issued: 5/24/88

Divisional application filed 2/24/88

Patents applied for in the countries designated in (1) above.

Assignees: The President and Fellows of Harvard College, the Massachusetts Institute of Technology, and Children's Hospital Corporation

5. Jones, A.G., Davison, A., Kronauge, J.F., Abrams M.J. "Carboxy, carboalkoxy, and carbamile substituted isonitrile radionuclide complexes"

US Patent No. 4,735,793 Filed: 8/30/85 Issued: 4/5/88

Canadian Patent No. 1,254,901 Filed: 8/29/86 Issued: 5/30/89

Greek Patent No. 86,2179 Issued: 8/22/86

Patents applied for in the countries designated in (1) above.

Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology

6. Jones AG, Davison A, Abrams, M.J. "Method for preparing radiopharmaceutical complexes"

US Patent No. 4,826,961 Filed: 1/22/87 Issued: 5/2/89

Divisional of US Patent No. 4,707,544

Patents applied for in the countries designated in (1) above.

Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology

7. Meltzer, P.C., Madras, B.K., Davison, A., Blundell, P., Mahmood, A., Jones, A.G. "Tropanes with chelating ligands, preparation thereof and of rhenium and technetium complexes thereof, and use as dopamine transporter imaging agents"

US Patent No. 6,171,576 Filed: Issued: 1/9/01

Divisional of 36007. Issued as US 4,872,561 10/10/89

Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology and Organix, Inc.

8. Lansbury, Jr. P., Han, H.C., Cho, C.G., Zhen, W., Harper J.D., Davision, A. "Organometallic ligands for the localization and quantification of amyloid in vivo and in vitro"

US Patent No. W09741856 Filed: Issued: 11/13/97

Assignees: Brigham & Women's Hospital and the Massachusetts Institute of Technology

9. Mahmood, A, Fribe M, Bolzati C, Jones AG, Davison A. Preparation of small technetium-99m and rhenium labeled agents and methods for imaging tumors.

US Patent No. W00183436 Filed: 11/8/01 Issued:

Assignees: The President and Fellows of Harvard College and the Massachusetts Institute of Technology