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# Dr Simon Cotton BSc, ARCS, PhD, DIC, CChem, FRSC

Honorary Senior Lecturer in Chemistry

**School of Chemistry (/schools/chemistry/index.aspx)**

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## About

Simon Cotton is an Honorary Senior Lecturer in Chemistry.

He has written five books, three as sole author; a sixth is due to be published in late 2011. He has published extensively in the chemistry of the d- and f-block metals.

He taught for some 30 years in state and independent secondary schools and has been closely involved in promoting chemistry, whether visiting feeder schools with activities such as Magic Shows, or with extension by lectures and writing.

## Qualifications

- Chartered Chemist and Fellow of the Royal Society of Chemistry, 1989
- PhD in Inorganic Chemistry, London University, 1970
- Diploma of Imperial College, 1970
- Associate of the Royal College of Science, 1967
- BSc (Hons), Chemistry, London University, 1967

## Biography

Simon Cotton graduated from Imperial College in 1967, continuing there to obtain a PhD (1970) for research into the chemistry of iron compounds, principally by electron paramagnetic resonance (EPR). He then carried out postdoctoral research at Queen Mary College, London, into the synthesis of intensely reactive organometallic compounds of the lanthanides, leading to the discovery of the first σ -bonded f-block organometallic and the first four coordinate lanthanide compound. Subsequently, he was the University Demonstrator in Inorganic and Theoretical Chemistry at the University of East Anglia.

For the next thirty years, he combined teaching at the secondary level in both state and independent schools with chemical writing and research in inorganic chemistry. Ten research papers involving sixth form contributors have so far appeared in peer-group refereed journals.

His "Soundbite Molecules" column has regularly appeared in the magazine Education in Chemistry since September 1996, reaching every secondary school in the UK, whilst he has been a major contributor to the Royal Society of Chemistry's "Chemistry in its element – Interactive Periodic Table" and "Chemistry in its element – Compound" podcasts. He has also written over 40 "Molecules of the Month" for the University of Bristol's website. In 2005, he shared the Royal Society of Chemistry's Schools Education Award.

## Teaching

- Foundation Chemistry

## Research

**RESEARCH THEMES**

Chemistry of the d- and f-block elements.

**RESEARCH ACTIVITY**

Research is carried out with collaborators at the Universities of Bath and Staffordshire, and with University College, London.

## Publications

**Selected publications: -**

**Books:-**

Cotton, S. A. and Hart, F. A. (1975) **The Heavy Transition Elements**, Basingstoke, Macmillan.

Cardin, D. J., Cotton, S. A., Green, M. and Labinger J.A. (1985), **Organometallic Compounds of the Lanthanides, Actinides and Early Transition Metals**, London, Chapman and Hall.

Cotton, S. A. (1991), **Lanthanides and Actinides**, Basingstoke, Macmillan.

Cotton, S. A. (1997), **Chemistry of Precious Metals**, London, Blackie.

Cotton, S. A. (2006), **Lanthanide and Actinide Chemistry**, Chichester, John Wiley.

Cotton, S. A., **Every Molecule Tells a Story**, London, Chapman and Hall, publication due November 2011.

### Recent Important Reviews: -

Cotton, S. A. (1996), "After the Actinides, then what?", **Chem. Soc. Reviews**, 25: 219-227.

Cotton, S. A. (2004), "Scandium, Yttrium, and the Lanthanides", in **Comprehensive Coordination Chemistry**, 2nd edition, Oxford, Pergamon.

Cotton, S. A. (2005), "Scandium, Yttrium & The Lanthanides: Inorganic and Coordination Chemistry" in **Encyclopedia of Inorganic Chemistry**, 2nd edition, Chichester, John Wiley.

Cotton, S. A. (2005), "Establishing Co-ordination Numbers for the Lanthanides", **Comptes Rendus Chimie**, 8: 129-145.

Cotton, S. A. (2009), "Scandium, Yttrium & the Lanthanides: Applications" in **Encyclopedia of Inorganic Chemistry**, Chichester, John Wiley.

Reviewer for **Annual Reports on the Progress of Chemistry, Sect. A, Inorg. Chem**.:- Titanium, Zirconium and Hafnium 1990 – present; Iron, Cobalt, Nickel 1990 - 2006; Iron, Ruthenium, Osmium 2007 – present; Scandium, Yttrium, the Lanthanides and the Actinides 1993- present, Cambridge, Royal Society of Chemistry

Editor of Lanthanide and Actinide Compounds 1984-1997 for the **Dictionary of Organometallic Compounds** and the **Dictionary of Inorganic Compounds**, London, Chapman and Hall.

### Recent important research papers: -

Ahrens, B., Cotton. S. A, Feeder, N., Noy, O. E., Raithby, P. R. and Teat, S. J. (2002), "Structural variety in nitrate complexes of the heavy lanthanides with 2,2': 6', 2"-terpyridine, and stereoselective replacement of nitrate", **J. Chem. Soc. Dalton**, 2027-2030.

Cotton, S. A., Fawcett, J. and Franckevicius, V. (2002), "Syntheses and Structures of Iron(III) complexes of simple N-donor ligands", **Polyhedron**, 21**:** 2055-2061.

Cotton, S. A., Franckevicius, V., How, R. E., Ahrens, B., Ooi, L. L., Mahon, M. F., Raithby, P. R. and Teat, S. J. (2003) "Synthesis of complexes of 2,2': 6', 2"-terpyridine and 1,10-phenanthroline with lanthanide thiocyanates; the molecular structures of $[Ln(terpy)_2(NCS)_3]$ (Ln = Pr, Nd), $[Nd(terpy)_2(NCS)_3]$.2EtOH and $[Ln(phen)_3(NCS)_3]$.EtOH (Ln = Pr, Nd)", **Polyhedron**, 22: 1489-1497.

Cotton, S. A., Franckevicius, V. Mahon, M. F., Ooi, L. L., Raithby, P. R. and Teat, S. J. (2006) "Structures of 2, 4, 6-tri-α-pyridyl-1,3,5-triazine complexes of the lanthanide nitrates; A study in the lanthanide contraction", **Polyhedron**, 25: 1057-1068.

Cotton, S. A., Fisher, V. M. A., Raithby, P. R., Schiffers, S., and Teat, S. J. (2008), "Synthesis and structure of a dimeric scandium bis(μ-methoxy) complex",**Inorg. Chem. Comm**., 11: 822-824.

Bou-Moreno, R., Cotton, S. A., Hunter, V., Leonard, K., Platt, A. W. G., Raithby, P. R., and Schiffers, S., (2011), "Cobalt (II) complexes of tricyclohexylphosphine oxide and related ligands and their X-ray structures", **Polyhedron**, 30, 2832-2836.

### Recent Chemical Education articles: -

Cotton, S. A. (2004), "Chirality, Smell and Drug Action", **Educ. Chem.**, 41: 123-129.

Cotton, S. A. (2005), "Plant Defence and Organic Chemistry", **Educ. Chem.**., 42: 159-161.

Cotton, S. A. (2006), "Spicing Up Chemistry", **Educ. Chem.**., 43: 71-73.

Cotton, S. A., (2008), "Deadly Things Come In Small Packages", **Educ. Chem.**., 45: 144-147.

Cotton, S. A., (2009), "If it smells, it's chemistry", **Educ. Chem**., 46: 45-51.

Cotton, S. A. (2009), "Bombykol – the discernment of how a pheromone acts at the molecular level", **Educ. Chem**., 46: 148-152.

Cotton, S. A. (2010), "Five rings good, four rings bad", **Educ. Chem**., 47: 44-48.

Cotton, S. A. (2011), "Really Cheesy Chemistry", **Educ. Chem**., 48: 11-15.

Cotton, S. A. (2011), "Vincent van Gogh, Chemistry and Absinthe", **Educ. Chem**., *48: 75-79.*

Molecules of The Month available at: - **http://www.chm.bris.ac.uk/motm/motm.htm (http://www.chm.bris.ac.uk/motm/motm.htm)**
(accessed at 21 September 2011)

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