



# 南京大学高济宇有机化学前沿讲座

Find the Art of Chemistry!

题目: **Selective anion transport**

**Prof. Philip Gale**

报告人: Head of the School of Chemistry, the University of Sydney  
Editor-in-Chief of Coordination Chemistry Reviews



地点: 仙林化学楼H201蒋雯若报告厅

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## Biographical details:

1992-1995 received his MA and Dphil from the University of Oxford  
1995-1997 worked as a Fulbright Scholar in the University of Texas at Austin  
1997-1999 returned to the Inorganic Chemistry Laboratory at Oxford as a Royal Society University Research Fellow.  
1999-2017 moved to a Lectureship at the University of Southampton in 1999  
promoted to Senior Lecturer in 2002, Reader in 2005  
Personal Chair in Supramolecular Chemistry in 2007  
2017- Professor of Chemistry and Head of the School of Chemistry in the University of Sydney

## Awards and honours

In 2016 as a Web of Science Highly Cited Researcher  
In 2014,2015 listed by Thomson Reuters as a Highly Cited Researcher in chemistry in 2016.  
In 2014 the RSC 2014 Supramolecular Chemistry Award,  
In 2013 a Royal Society Wolfson Research Merit Award (2013),  
In 2005 the RSC Corday Morgan medal and prize (2005),  
In 2004 the Society/Journal of Porphyrins and Phthalocyanines Young Investigator Award (2004)  
In 2004 the RSC Bob Hay Lectureship (2004).

## Lecture abstract:

Anions are ubiquitous in the Natural world. Chloride anions are present in large quantities in the oceans; nitrate and sulfate are present in acid rain; and carbonates in biomineralised materials. Anthropogenic anions including pertechnetate, a radioactive product of nuclear fuel reprocessing, and phosphate and nitrates from agriculture and other human activities, constitute major pollution hazards. Anions are also critical to the maintenance of life. Indeed, without exaggeration, the recognition, transport or transformation of anions is involved at some level in almost every conceivable biochemical operation. It is essential in the formation of the majority of enzyme-substrate and enzyme-cofactor complexes as well as in the interaction between proteins and RNA or DNA. ATP, phosphocreatine and other high-energy anionic phosphate derivatives, power processes as diverse and important as biosynthesis, molecular transport and muscle contraction while serving as the energy currency for a host of enzymatic transformations. Anion channels and carriers are involved in the transport of small anions such chloride, phosphate and sulfate and thus serve to regulate the flux of key metabolites into and out of cells while maintaining osmotic balance.

## Selected publications:

1. Fluorescent transmembrane anion transporters: shedding light on anionophoric activity in cells. *Chemical Science*, 7(8), 5069-5077. (2016).
2. pH-regulated nonelectrogenic anion transport by phenylthiosemicarbazones. *Journal of the American Chemical Society*, 138(26), 8301-8308 (2016).

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