Omar Yaghi pioneered a new field of chemistry (Reticular Chemistry), which is concerned with the science of linking organic and inorganic molecules by strong bonds to make crystalline frameworks, termed metal-organic frameworks and covalent organic frameworks. These chemical structures exhibit exceptional properties including carbon capture and conversion to fuels as well as water harvesting from desert air. He has published over 280 papers in peer-reviewed scientific journals that have received over 146,000 total citations with an average of 500 citations per paper.

He was born in Amman, Jordan and received B.S. degree in chemistry from State University of New York-Albany (1985), and Ph.D. degree in chemistry from University of Illinois-Urbana (1990). He was an NSF Postdoctoral Fellow at Harvard University (1990-92). He has held professorial positions in chemistry at Arizona State University (1992-97), University of Michigan-Ann Arbor (1998-2005), and UCLA (2006-11). Since 2012, he has been the James and Neeltje Tretter Chair Professor of Chemistry at UC Berkeley. He has received awards from fifteen countries for his development of reticular chemistry and its applications. Among these are: Materials Research Society Medal (2007), American Chemical Society Award in Chemistry of Materials (2009), King Faisal International Prize in Science (2015), Albert Einstein World Award of Science (2017), BBVA Frontiers of Knowledge Award in Basic Sciences (2018), Wolf Prize in Chemistry (2018), Eni Award for Excellence in Energy (2018), National Academy of Sciences (2019), and Royal Swedish Academy of Sciences Aminoff Prize (2019).

3M Lecturers

1962	**Sir Derek H. R. Barton, Imperial College**
1963	Sir Ronald Nyholm, University College
1964	F. C. Tompkins, Imperial College
1965	S. Winstein, U.C.L.A.
1966	F. A. Cotton, M.I.T.
1967	J. O. Hirschfelder, Wisconsin
1968	A. Eschenmoser, E.T.H., Switzerland
1969	**H. Taube, Stanford**
1970	S. A. Rice, Chicago
1971	F. H. Westheimer, Harvard
1972	R. G. Pearson, Northwestern
1973	W. A. Klemperer, Harvard
1974	G. Stork, Columbia
1975	R. J. P. Williams, Oxford
1976	J. A. Morrison, McMaster
1977	D. Arigoni, E.T.H., Switzerland
1978	J. Chatt, Sussex
1979	**J. A. Pople, Carnegie-Mellon**
1980	W. P. Jencks, Brandeis
1981	J. Halpern, Chicago
1982	Sir John Meurig Thomas, Cambridge
1983	R. Breslow, Columbia
1984	M. L. H. Green, Oxford
1985	**D. R. Hershbach, Harvard**
1986	**J. M. Lehn, Strasbourg**
1987	M. H. Chisholm, Indiana
1988	**R. A. Marcus, Cal. Tech.**
1989	**D. J. Cram, U.C.L.A.**
1990	D. Seyferth, M.I.T.
1991	D. A. Shirley, Berkeley
1992	K. U. Ingold, NRC, Ottawa
1993	H. Schmidbauer, Munich
1994	A. J. Bard, U. Texas, Austin
1996	R. Huisgen, Munich
1998	J. M. J. Fréchet, Berkely
1999	R. W. Field, M.I.T.
2000	I. Dance, New South Wales
2001	K. C. Nicolaou, San Diego
2002	R. R. Birge, Connecticut/Syracuse
2003	D. Fenske, Karlsruhe
2004	A. Padwa, Emory
2005	N. Dovichi, Washington State
2006	K. N. Raymond, Berkeley
2007	K. Tamao, RIKEN and Kyoto University
2008	P. Corkum, NRC, Ottawa
2009	D. Astruc, Univ. Bordeaux
2010	Harry B. Gray, Cal. Tech.
2013	Ian Manners, Bristol, UK
2015	Angela Belcher, M.I.T.
2017	Jim Mayer, Yale

The 3M University Lecturer in Chemistry 2019

Omar M. Yaghi

James and Neeltje Tretter Chair Professor of Chemistry UC Berkeley

October 21 & 22, 2019

http://yaghi.berkeley.edu/index.html

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Chemistry Website: http://www.uwo.ca/chem/

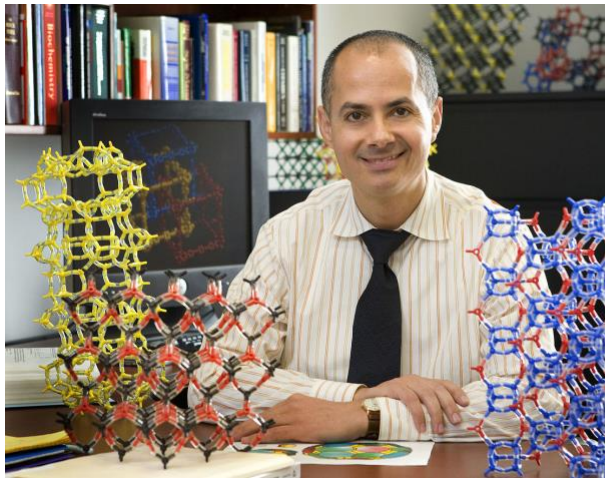
Monday, October 21, 2019
3:30 p.m.
Western University
Biological & Geological
Sciences Building, Room 0165

REFRESHMENTS WILL BE SERVED PRIOR TO THE LECTURE

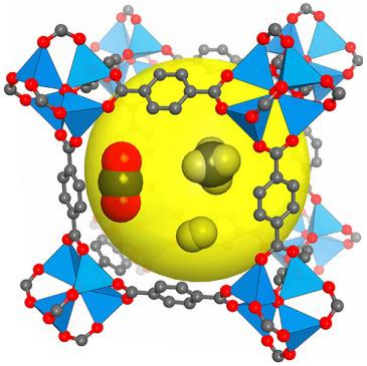
Lecture 1

The Chemistry of Metal-Organic Frameworks

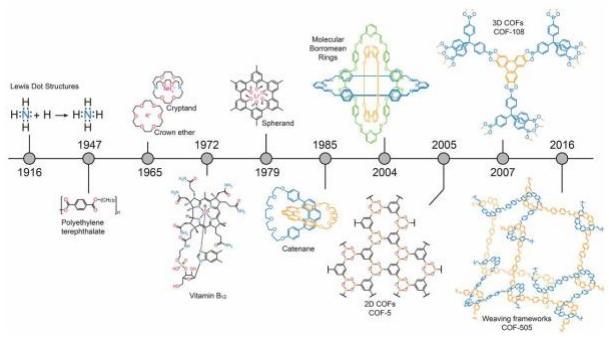
Since the first report of metal-organic frameworks in the mid-1990s, the chemistry of these frameworks has rapidly developed to become one of the fastest growing field of science. In this lecture the challenges and solutions to making crystalline, truly porous frameworks, and the 'grammar' of linking organic and inorganic building blocks by strong bonds into MOFs will be described. The flexibility with which these structures can be varied and modified has led to a plethora of structures and applications especially in catalysis, carbon capture, and water harvesting from desert air. The lecture will conclude by showing how multivariate structures of MOFs may very well lead to sequence-dependent materials properties.



Lecture 1



Lecture 2



Tuesday, October 22, 2019
10:00 a.m.
Western University Visual
Arts Centre, 100

REFRESHMENTS WILL BE SERVED PRIOR TO THE LECTURE

Lecture 2

Extending Organic Chemistry to Infinite 2D and 3D

Over one hundred years ago Gilbert N. Lewis published his conceptual paper concerning the chemical bond. Since that report, the covalent bond occupied a central role in building up organic molecules leading to polymers and pharmaceuticals. Since our discovery of covalent organic frameworks in 2005, the chemistry of the covalent bond was extended to crystalline two- and three-dimensional structures. This opened the way to carrying out chemistry on frameworks (i.e. the development of precision chemistry beyond the molecule). The union of the covalent and the mechanical bond gives way to incorporating flexibility and dynamics into frameworks and leads to molecular weavings. This provides a whole new way of thinking about materials beyond the molecules conceived by Lewis and developed thereafter.