

**The Twentieth Annual
Robert M. & Martha W. Ross
Dartmouth Chemistry Lecture Series 2024-2025**



Cynthia Burrows

**Thatcher Presidential Chair and Distinguished Professor of Chemistry
University of Utah**

“The Iron-Fenton Reaction in Cells”

**Wednesday, October 2, 2024
4:00 P.M.**

006 Steel Hall, College Street, Hanover, NH
Refreshments at 3:30 P.M. in the Burke Laboratory Marx Lounge

**“G-Quadruplexes connect DNA Damage and Repair to Gene
Induction”**

**Thursday, October 3, 2024
10:30 A.M.**

006 Steel Hall, College Street, Hanover, NH
Refreshments at 10:00 A.M. in the Burke Laboratory Marx Lounge

Cynthia J. Burrows is Thatcher Distinguished Professor of Chemistry at the University of Utah in Salt Lake City. As an undergraduate at the University of Colorado, she studied organic photochemistry with Stanley Cristol. After PhD studies in physical organic chemistry at Cornell University (with Barry Carpenter), she was an NSF-CNRS postdoctoral fellow with Nobel Laureate Jean-Marie Lehn at Université Louis Pasteur in Strasbourg, France. She began her independent career at Stony Brook University in 1983 and moved to the University of Utah in 1995.

The Burrows research group investigates the chemistry and biochemistry of modified bases in DNA and RNA with a focus on oxidative stress, an underlying component of age-related diseases including cancer. One aspect of Burrows' work involves the interplay of non-Watson-Crick structures, such as G-quadruplexes, with base modifications. This led to the surprising discovery that DNA 'damage' could impact gene expression in a positive way, conferring an epigenetic character to oxidized bases. Understanding molecular mechanisms has been a driving force in her research program, most recently by unraveling a dramatic change in the iron-Fenton reaction responsible for cellular oxidative stress.

For this work, reported in ~250 publications, Burrows has been recognized with several awards including the ACS Cope Scholar Award, the James Flack Norris Award in Physical Organic Chemistry, the Willard Gibbs Medal and the Linus Pauling Medal of the ACS. Burrows was inducted into the American Academy of Arts and Sciences in 2009 and elected to the National Academy of Sciences in 2014. In 2019, she won the Rosenblatt Prize, the highest honor awarded to a faculty member at the University of Utah.