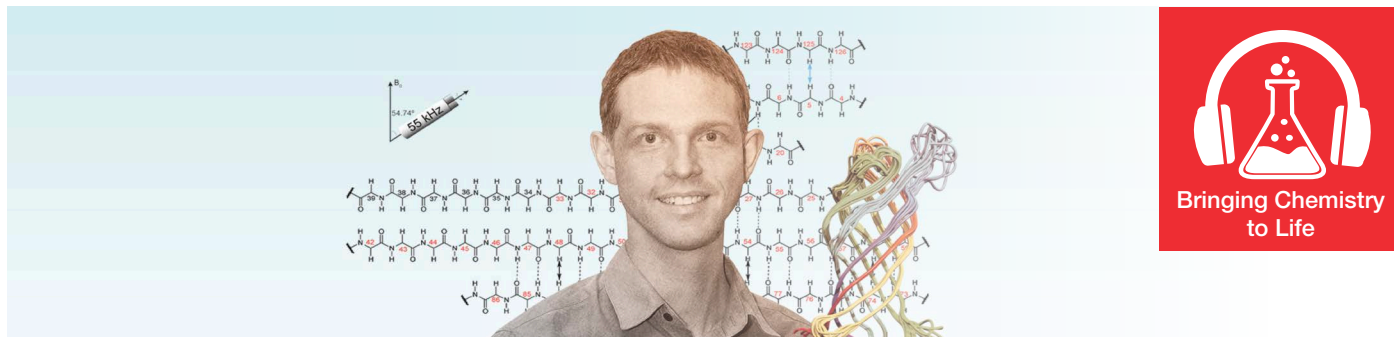


# Bringing Chemistry to Life podcast series

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## Season 1: The 2019 C&EN's Talented 12 Episode 7: Stronger magnets, stronger science



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to Life

### Episode abstract

Since the elucidation of the DNA structure by James Watson and Francis Crick in 1951, the importance of understanding the three-dimensional structure of biomolecules has become obvious. Over the last few decades scientists have resolved the structure of thousands of complex biomolecules enabling incredible innovations in drug design, biological and medical sciences. X-Ray crystallography has been the key technique, but in recent years Nuclear Magnetic Resonance (NMR) has emerged as an additional, complementary approach. Dr. Loren Andreas explains to us how NMR has grown to be the technology of choice as it has expanded its field of application from liquid solutions to condensed systems. The discussion is a surprising discovery of how progress in engineering and instrument design has completely changed the landscape in structural biology. Modern NMR allows scientists to study molecules in complex systems, simulating more closely their natural environment, including interaction between them. This episode offers an exciting glimpse of the future, through a few examples from today's science.

### About our guest

#### Loren B. Andreas, PhD

Emmy Noether Group Leader, Max Planck Institute for  
Biophysical Chemistry

Loren's group site:

<https://www.mpibpc.mpg.de/andreas>

C&EN Talented 12 profile of Loren:

<https://cen.acs.org/analytical-chemistry/spectroscopy/Loren-Andreas/97/i33>

### Recent Publications from Loren:

- [A  \$\beta\$ -barrel for oil transport through lipid membranes: Dynamic NMR structures of AlkL](#)
- [Automated backbone NMR resonance assignment of large proteins using redundant linking from a single simultaneous acquisition](#)
- [Imidazole-imidazole hydrogen bonding in the pH-sensing histidine side chains of influenza A M2](#)
- [Crucial role for oxygen functional groups in the oxygen reduction reaction electrocatalytic activity of nitrogen-doped carbons](#)
- [Proton-based structural analysis of a heptahelical ransmembrane protein in lipid bilayers](#)

### Loren's Content Recommendations:

- [Spinning All The Hits](#) (Griffin group Zoominar page)
- [Proton detection, membrane proteins, and small molecule protein interactions via DNP](#) (a webinar from Loren)

This podcast series is available via the following links



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