ABSTRACT:
Special relativity plays an important role in heavy-element chemistry and is also relevant to calculations of light elements when aiming at high accuracy [1]. This presentation is focused on recent developments of relativistic quantum chemistry [2]. The applicability of relativistic quantum-chemical methods presented here is demonstrated with example applications, including vibronic branching ratios in lasercoolable molecules [3], x-ray spectroscopy involving elements across the periodic table [4], and spectra for molecules containing early actinides as examples for elements in the far reaches of the periodic table [5].


BIO:
Lan Cheng is an assistant professor in theoretical and computational chemistry. His group carries out research on relativistic electron-structure theory and heavy-element chemistry.

Lan received his Ph.D. from Peking University (Professor Wenjian Liu). After graduation he worked as a postdoctoral fellow at Johannes-Gutenberg Universität Mainz (Professor Jürgen Gauss) and at the University of Texas at Austin (Professor John Stanton).