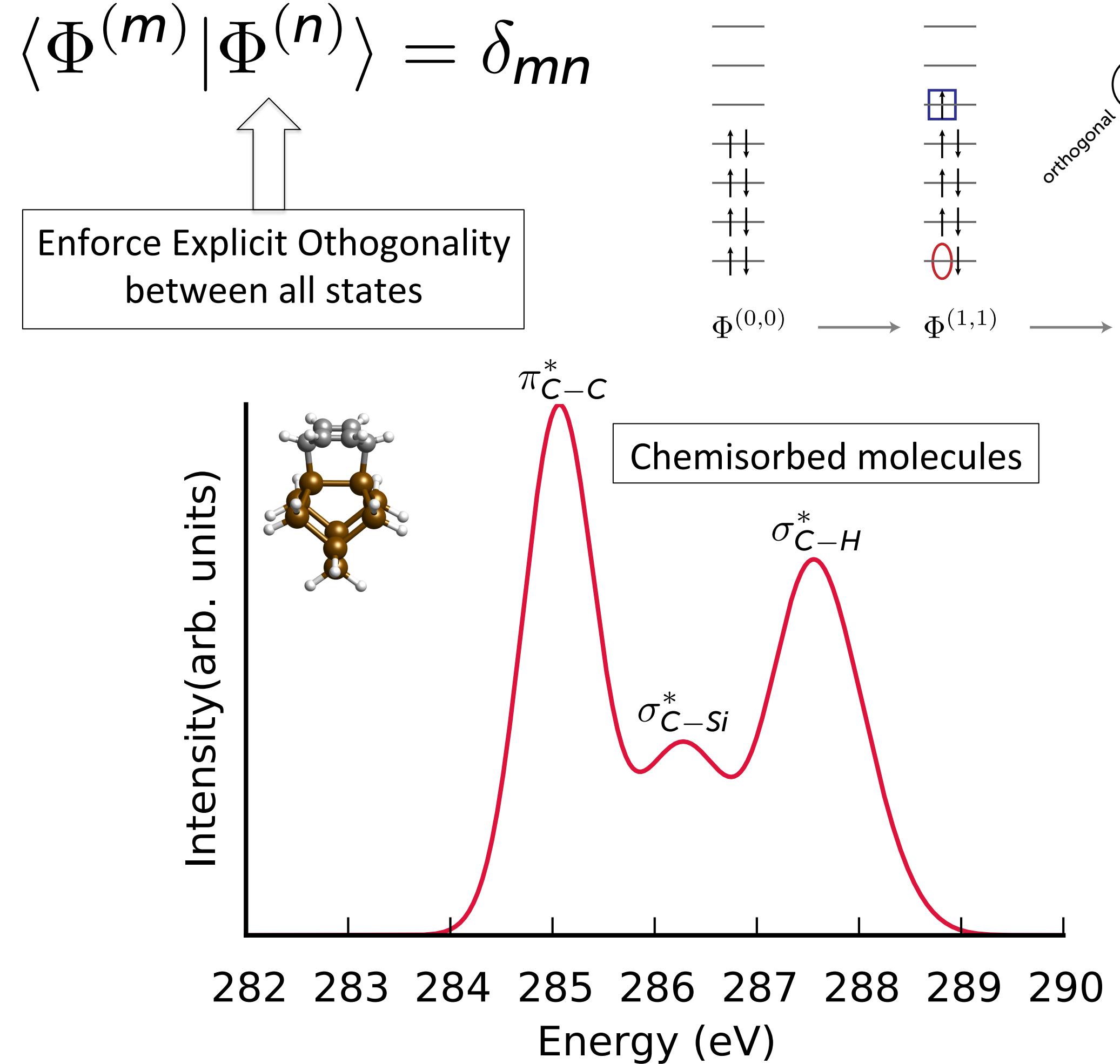




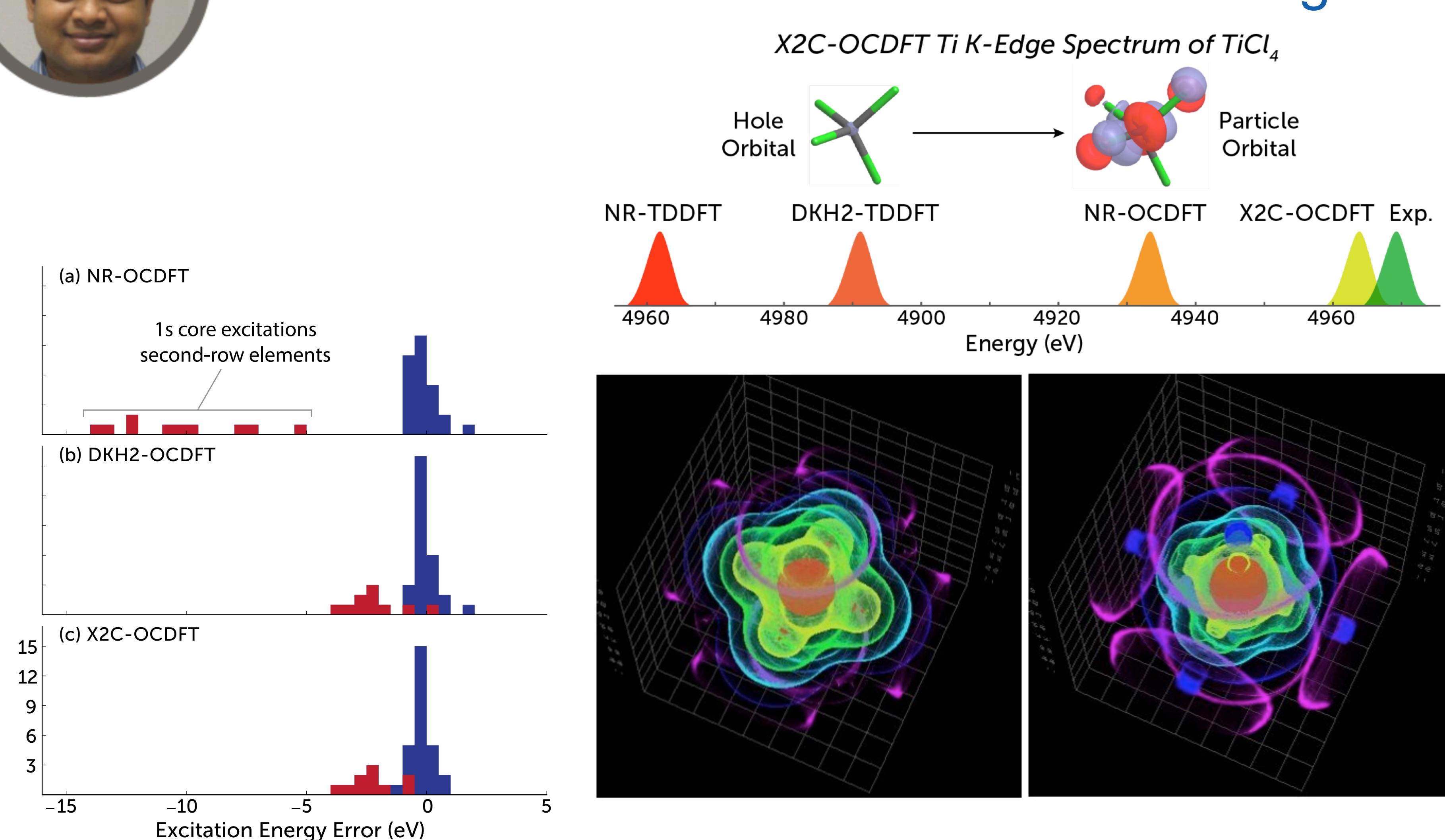
## Time Independent DFT Approaches for Excited States and Relativistic Effects



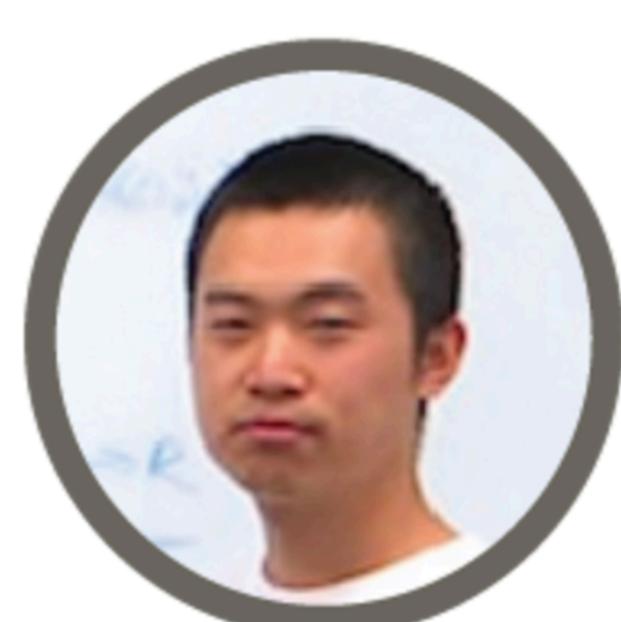
➤ Wallace Derricotte: Orthogonality constrained approach to high-energy excited states



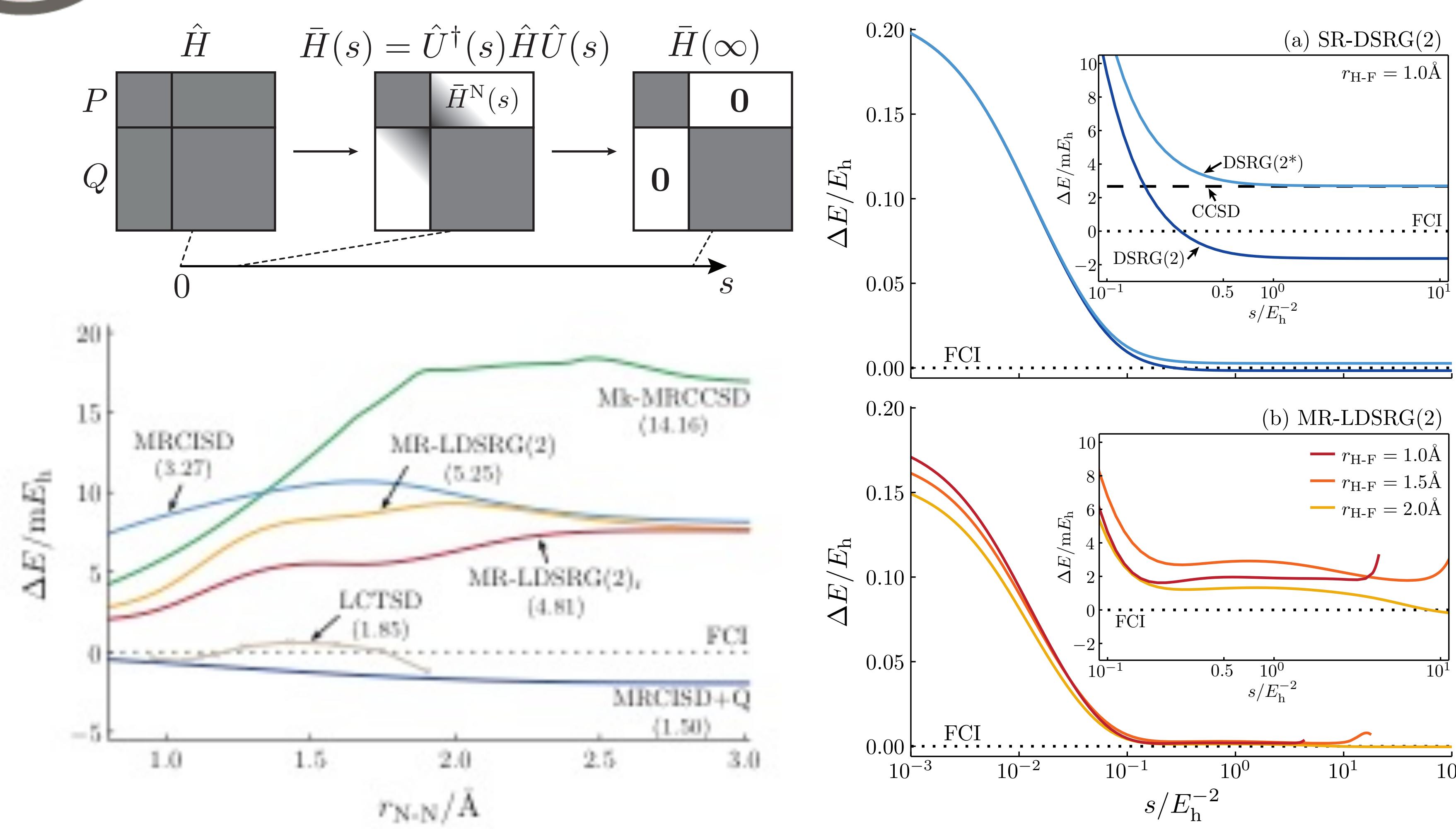
➤ Prakash Verma: Influence of scalar relativistic effect on core excitation energies



## Renormalization Group Methods for Strongly Correlated Electrons



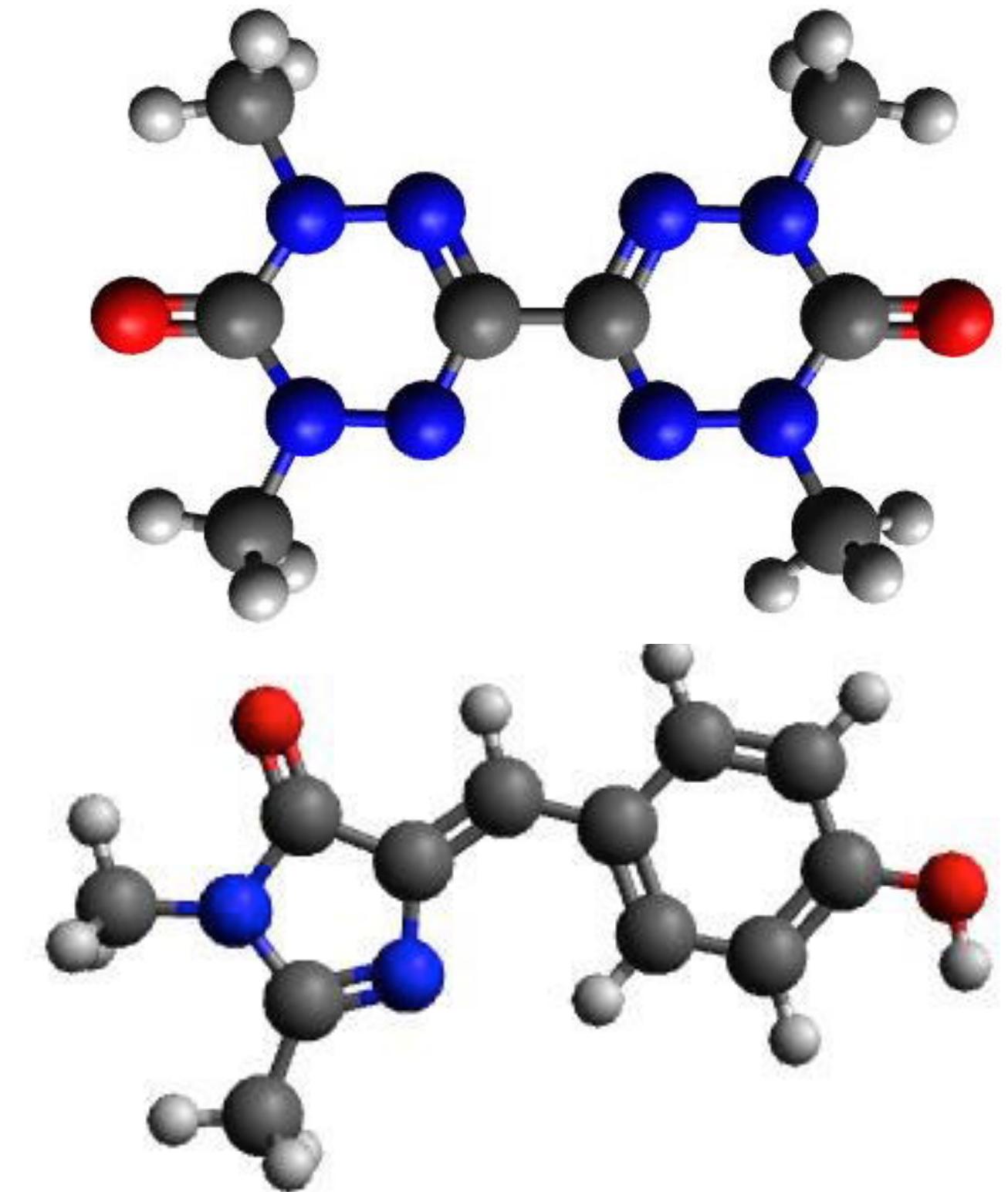
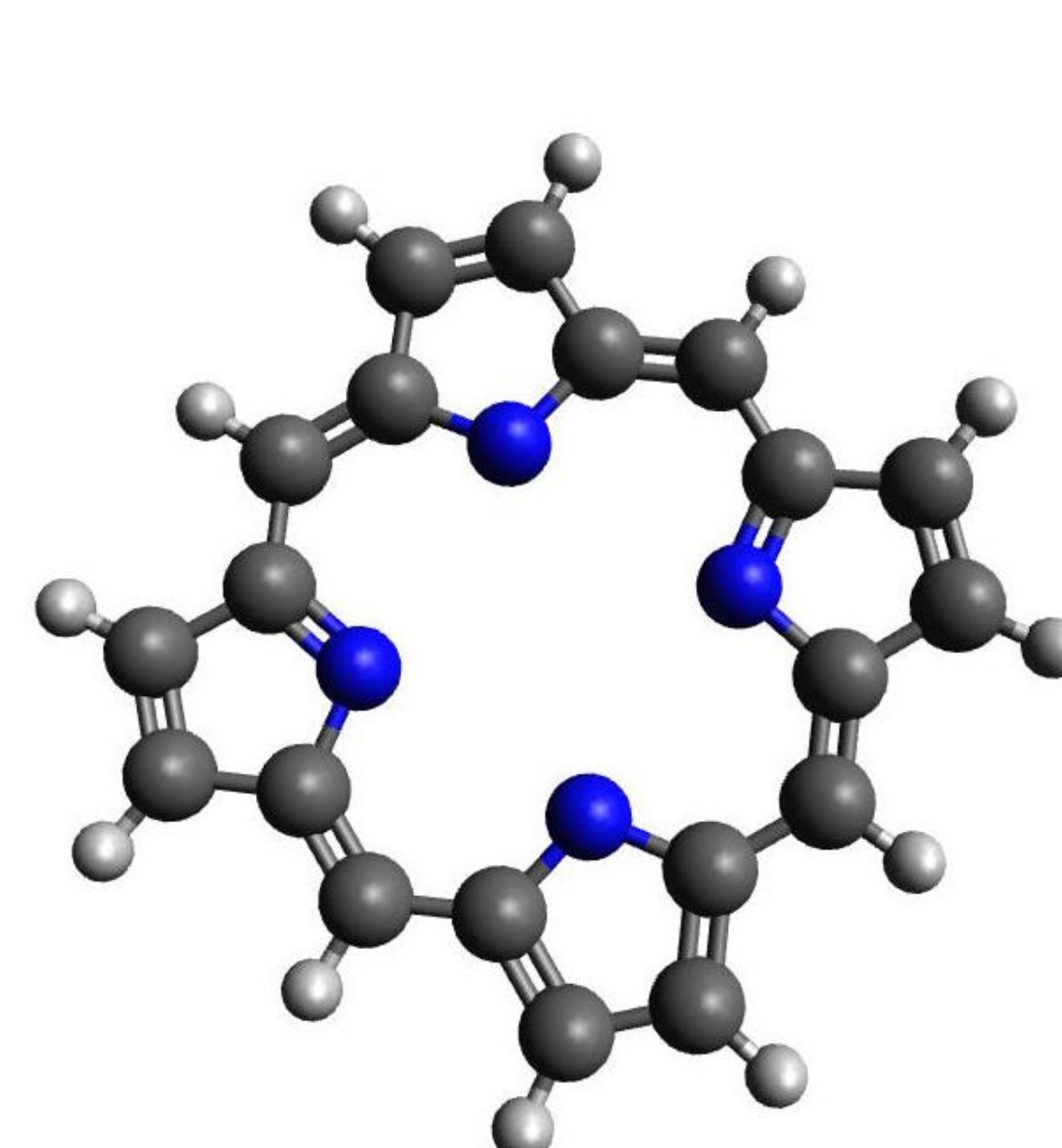
➤ York Li: Develop robust, systematically improvable multireference many-body methods



➤ Kevin Hannon: Efficient implementation of new multireference methods

$$\frac{1}{4} \sum_{mnef} \tilde{v}_{mn}^{ef,(1)}(s) t_{ef}^{mn,(1)}(s) = \frac{1}{4} \sum_{mnef} |v_{mn}^{ef}|^2 \frac{(1 - e^{-s(\Delta_{mn}^{ef})^2})}{\Delta_{mn}^{ef}}$$

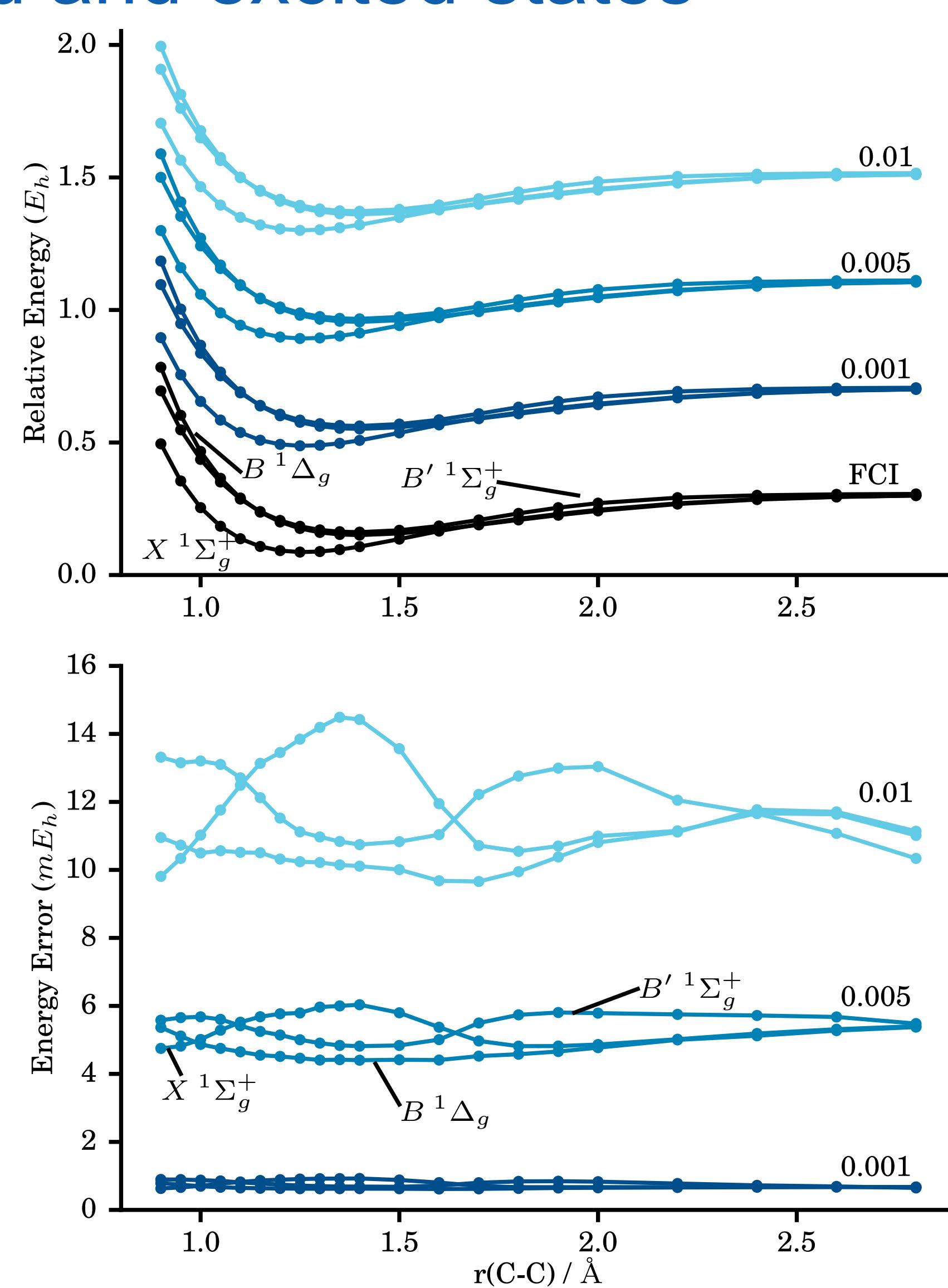
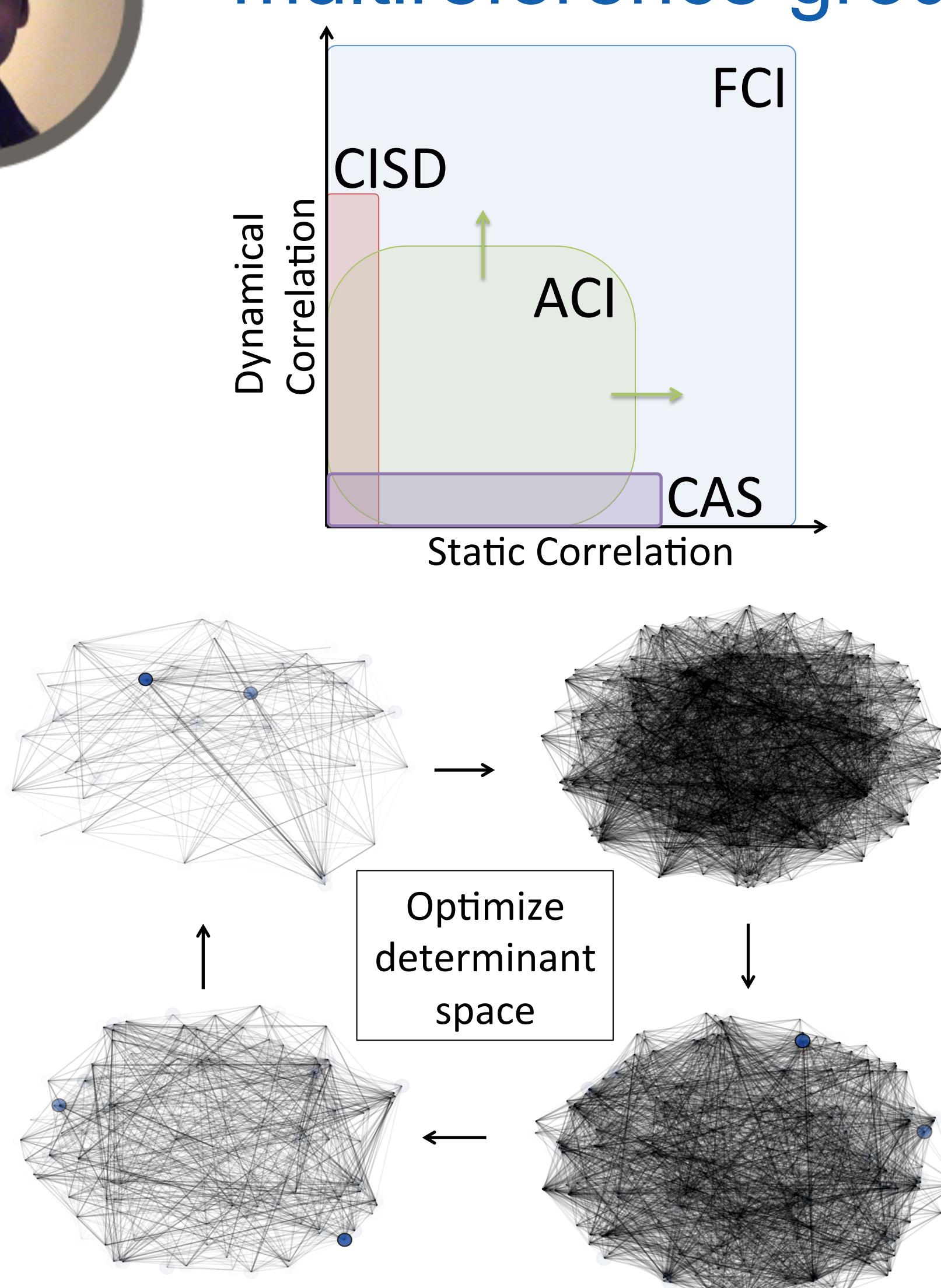
$$\tilde{v}_{pq}^{rs} = (B_{pr}^Q B_{qs}^Q - B_{ps}^Q B_{qr}^Q)(1 + e^{-s(\Delta_{pq}^{rs})^2})$$



## Adaptive Electronic Structure Methods



➤ Jeff Schriber: Selected CI methods for multireference ground and excited states



➤ Tianyuan Zhang: Building accurate wavefunctions with the Projective CI method

