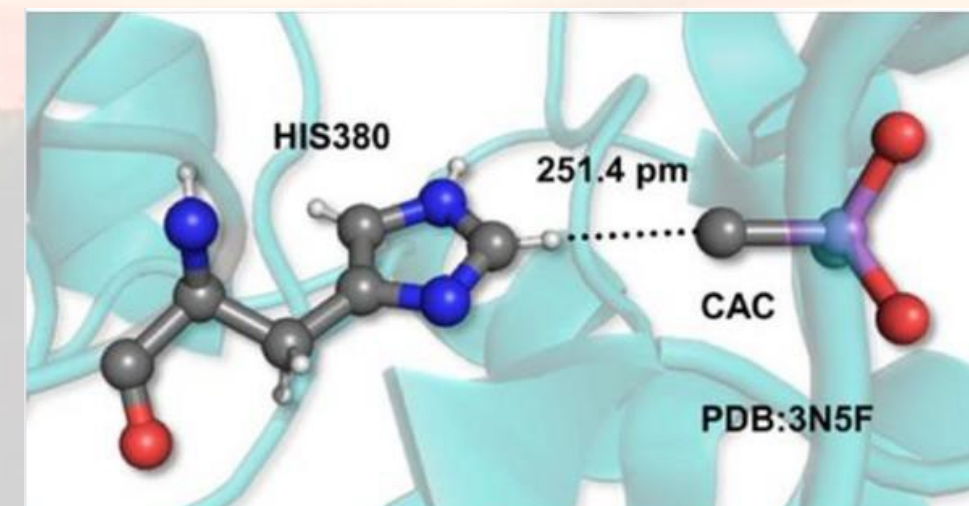


ASET Colloquium

Hydrogen Bonding that Turns the DNA and Folds the Protein: A Spectroscopist's Delight

Since its inception in 1919 by an undergraduate student, Maurice Huggins, Hydrogen Bonding has been a mystery for many researchers. The concern raised by Maurice's teacher William Bray "there are several interesting ideas in this paper, but there is one you'll never get chemists to believe: the idea that a hydrogen atom can be bonded two other atoms at the same time" still dribbles not only in the mind of chemists but also physicists and biologists. The voyage of this fundamental concept in chemistry is incomplete even though several prominent scientists like Wendell Latimer, Irving Langmuir, Linus Pauling, and most recently, the members of the International Union of Pure and Applied Chemistry (IUPAC) committee involved in defining (and/or redefining) hydrogen bonding in a meticulous manner. Hydrogen bonding is ubiquitous; it exists in as small as water dimers and as big as proteins; it is not only there in school textbooks, but very often it finds its place in scientific journals like Nature and Science; it is not only prevalent in conventional chemistry, physics and biology but also equally important for microbiology and astrobiology/astrochemistry/astrophysics etc. However, there is a lot to know about hydrogen bonding; several facts are unquestioned and unexplored. A brief overview of the advancement of the experimental techniques and methods employed to understand hydrogen bonds will be presented. The difficulties and challenges faced in carrying out spectroscopy of hydrogen-bonded molecular clusters in isolated conditions will also be discussed.



Prof. Himansu Sekhar Biswal (NISER, Bhubaneswar)

Himansu Biswal is an Associate Professor of Chemistry at the School of Chemical Sciences, NISER, Bhubaneswar. He belongs to a small village in Bari, Odisha, India. He received his M.Sc. degree from the Department of Chemistry, Utkal University 2002. He did his Ph.D. with Prof. Sanjay Wategaonkar from the Tata Institute of Fundamental Research (TIFR), Mumbai, India, in May 2009. Then he moved to Commissariat à l'Energie Atomique (CEA), Saclay, Paris, France, for his first postdoctoral research with CNRS postdoctoral fellowship and worked with Prof. Michel Mons. During his second postdoc, he worked on 2D Electronic spectroscopy of photosynthetic reaction centers with Prof. Jennifer Ogilvie at the University of Michigan (UoM), Ann Arbor, USA. He joined the School of Chemical Sciences (SCS) at NISER, Bhubaneswar, in April 2012. He involves in building scientific instruments. His current research interests include solvation and isomerization of peptides, conformational landscape of flexible biomolecules in jet-cooled condition, sulfur/selenium/carbon center hydrogen bonds and their role in the structure and function of biomolecules.



Venue, Date & Time: ONLINE, Friday, 30th December 2022, 4 pm

YouTube live-stream link: <https://youtube.com/live/deG1EMS2bT8?feature=share>