Osama K. Abou-Zied

Professor, Department of Chemistry Office 2043 Telephone +968 24141468 Fax +968 24141469 E-mail <u>abouzied@squ.edu.om</u> Credentials PhD (Saskatchewan, Canada, 1995) Specialization Laser Spectroscopy & Ultrafast Dynamics

Experience and Research Interest

One of the challenging problems in physical chemistry is to understand protein-ligand interaction at a molecular level and integrate this microscopic picture to explain chemical processes in biology such as protein folding and unfolding, enzyme catalysis, and drug binding and transport. We are particularly interested in studying protein-ligand binding processes, local hydration, complex rigidity and conformation dynamics. Intrinsic probes, such as the amino acid residues tryptophan and tyrosine, are characterized in various biological systems in order to probe local electrostatic interactions. In addition to these natural probes, we design and test novel extrinsic probes that can be used to understand certain chemical mechanisms inside DNA and proteins such as proton transfer and tautomerization. These mechanisms can be crucial in changing the genetic code through a local mutation that may eventually cause cancer.

Teaching Interest

My teaching interest is in the field of basic molecular spectroscopy at the undergraduate level, and laser spectroscopy and ultrafast dynamics in the excited states at the graduate level. **Courses:** CHEM4433, CHEM4435, CHEM5501, CHEM5502, CHEM 6631.