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## ESIPT based hydroxy-aryl benzimidazoles/ schiff bases as Chromofluorescent sensor and logic devices

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Proton transfer is very fundamental process, occurs in a large variety of chemical reactions as well as in biological systems such as acid-base neutralization and enzymatic reactions. Excited state intramolecular proton transfer (ESIPT) is one studied experimentally and theoretically due to its applications in molecular fluorescence probes, luminescent materials, UV stabilizers, OLEDs and molecular logic gates. In general, the ESIPT process requires hydrogen bond between proton donor (-OH, -NH<sub>2</sub>, or -NHR etc.) and proton acceptor groups (-C=O, -N= etc.), which must be at interacting distance to each other in a molecule. ESIPT process depends upon the distance of hydrogen bonding i.e. separation between the H-acceptor and donor atoms in molecule. The distance may change depending upon the ring size of system such as 5-membered, 6-membered or 7-membered.

In the present presentation, synthesis of various hydroxyl-aryl benzimidazoles/schiff bases will be discussed for exploration of ESIPT phenomenon. These moieties exhibited excited enol and keto tautomeric emission bands. The presence of anions

and metal ions has been realized by prohibiting ESIPT through coordination or deprotonation induced by metal and anions with ESIPT centers, resulting in detectable spectral change. Presence of substituent, extended conjugation on ESIPT centers further affects the keto enol tautomerism and thus fine tunes the emission channels. The stimuli induced bathochromic or hypsochromic shift of these normal and ESIPT based emission channels further open new emission channels and thus provided opportunity for simultaneous sensing of multiple analytes, biological interactions, miniaturization of logic gates.

### Speaker Biography

Vijay Luxami has completed her PhD from Guru Nanak Dev University, USA. She is the associate professor of Thapar Institute of Engineering & Technology, India. She is working on synthesis and organic compounds and supramolecular chemistry. She has more than 60 publications in reputed referred journals and has publication H-index is 18 and has been serving as reviewers' member of reputed Journals.

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