

## **Webinar**

### **Spin dependent electron transfer through chiral molecules and its application**

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Natural electron transfer process occurs through protein molecules though it is known that electron transfer through conjugated molecules is more efficient. Recently it has been proposed that depending on the chirality of the molecule, electrons of a certain spin can traverse the molecule more easily in one direction than in the other. This effect is known as Chiral Induced Spin Selectivity or CISS effect. According to this effect, chiral molecules can serve as spin filters. We found this phenomenon has important implications across in enantio-recognition, long-range electron transfer and electrochemical water splitting.

In our study, we have shown that the interaction of chiral molecules with a perpendicularly magnetized substrate is enantiospecific. We have also studied that spin controlled long range charge transfer through surface immobilized proteins influences its activity which paves a new mechanism of allosteric effect and may explain some current observations on protein interactions. We demonstrated the effect of chiral-induced spin selectivity for chiral material coated anode and exploited it to enhance the chemical selectivity in electro-catalytic water splitting. The results indicate a new strategy for designing low-cost earth-abundant catalysts.

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***4:00 PM***