

Abstract Submitted
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High Field Optomagnetic (OM) Polarization-Phase Selective (PPS) Monitoring of Structures and Controlling Reaction Agents Mechanisms in Complex Molecular Systems¹ KRESIMIR RUPNIK, Department of Chemistry LSU — Using OM techniques, including new high field 25T Split-Florida magnet at NHMF Laboratory, we have recently observed unusual metal cluster structures and electron transfer patterns in complex molecular systems of biomedical and material science interest. We report here some of the new technological solutions and (many) challenges that face OM and (quantum) control research. Of particular interest is identification of fast (10-100s fs) highly correlated electrons spin and vibrational coupling interpreted using adaptive molecular-photonic interaction models. Our observations question interpretations of previously proposed electron spin structure models and mechanisms and indicate possible new controlling mechanisms through highly selective coupled channels that combine different specific redox and photonic agents.

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