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æ‘˜è¦ (è‹±)	The thesis is focused on the synthesis and characterization of seven mono- , dimmer- and trimetal mixed-valence complexes including ferrocenylpyridine and rutheniumammine moieties, cis-,trans-[Ru(NH3)4 -(R1)2]2+/3+(R1= phpy),[Ru(NH3)4(R2-Fcpy)(py)]2+/3+(R2=Et-,H-) and cis-,trans-[Ru(NH3)4(R2-Fcpy)2]2+/3+/4+(R2= Et-,H-) and tried to explain the behavior of end-to-end electron transfer of cis-,trans-[Ru(NH3)4 (R2-Fcpy)2]4+(R2= Et-,H-).The linear regression for opitical electron transfer energy (Eop) vs Fâ–³E1/2(Î”E1/2=E1/2(FeIII/II)ï¼ E1/2(RuIII/II)) resulted the reorganizational energy of mixed-valence complexes and imply that the ground state distortional of cis-,trans-[Ru(NH3)4(R2-Fcpy)2]3+ (R2= Et-,H-) than of [Ru(NH3)4(R2-Fcpy)(py)]3+(R2=Et-,H-). For cis-,trans-[Ru(NH3)4 -(R2-Fcpy)2]2+/3+/4+ (R2= Et-), the two electrochemical redox curves are an electron (RuIII/II) redox process and two electron (FeIII/II) redox process in high donor-number solvent but R-Câ‰¡N solvent (three one-electron redox process).We calculate the electronic coupling Hab(end-to-end) with the electrochemistry data of cis-,trans-[Ru(NH3)4(R2-Fcpy)2]2+/3+/4+ (R2= Et-) in R-Câ‰¡N solvent and the Hab(end-to-end) , is much large than the electronic coupling Hab(end-to-end) of the classical Fc-bridge-Fc complexes, (bridge =4,4â€™-biphenyl).
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