

Supplementary information for

Studies on Electronic Energy Transfer (EET) on a Series of Room Temperature Ionic Liquids (RTILs): Can the EET Studies on RTILs be exploited to predict their Structural Organizations?

Sudhir Kumar Das, Prabhat Kumar Sahu and Moloy Sarkar*

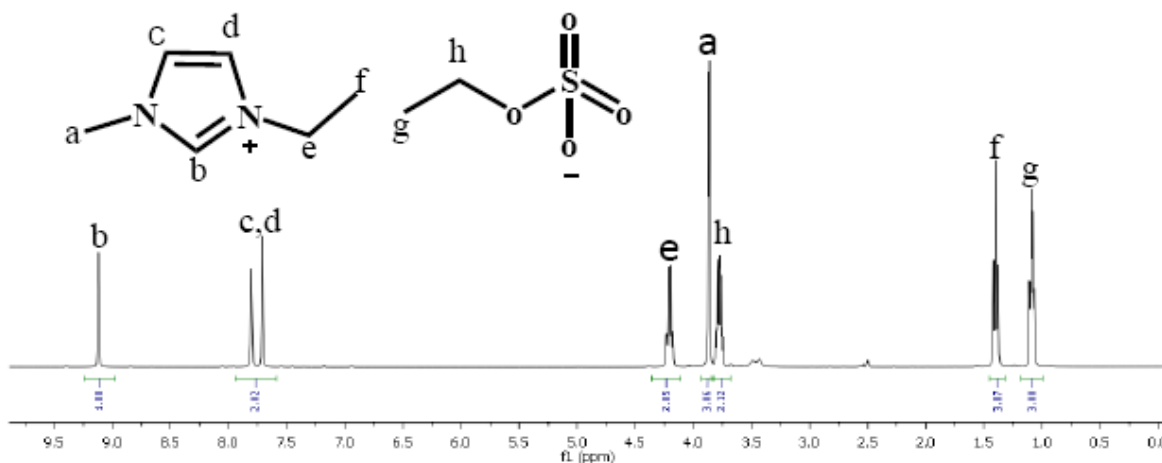


Fig. S1 ¹H NMR spectrum of EMIMESU in DMSO-*d*₆.

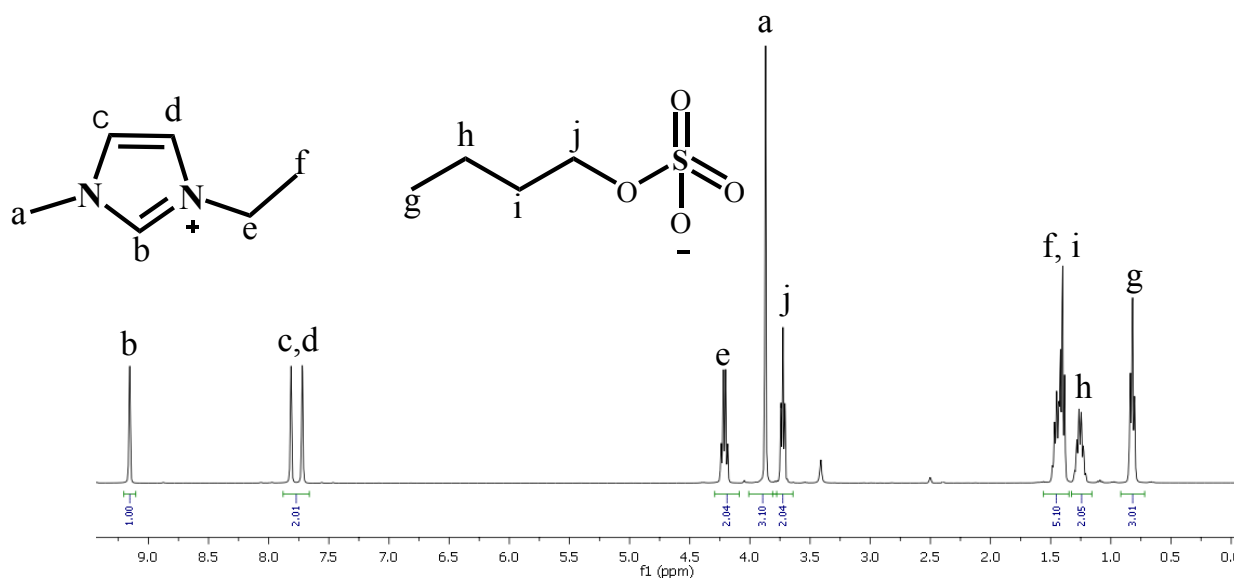


Fig. S2 ¹H NMR spectrum of EMIMBSU in DMSO-*d*₆.

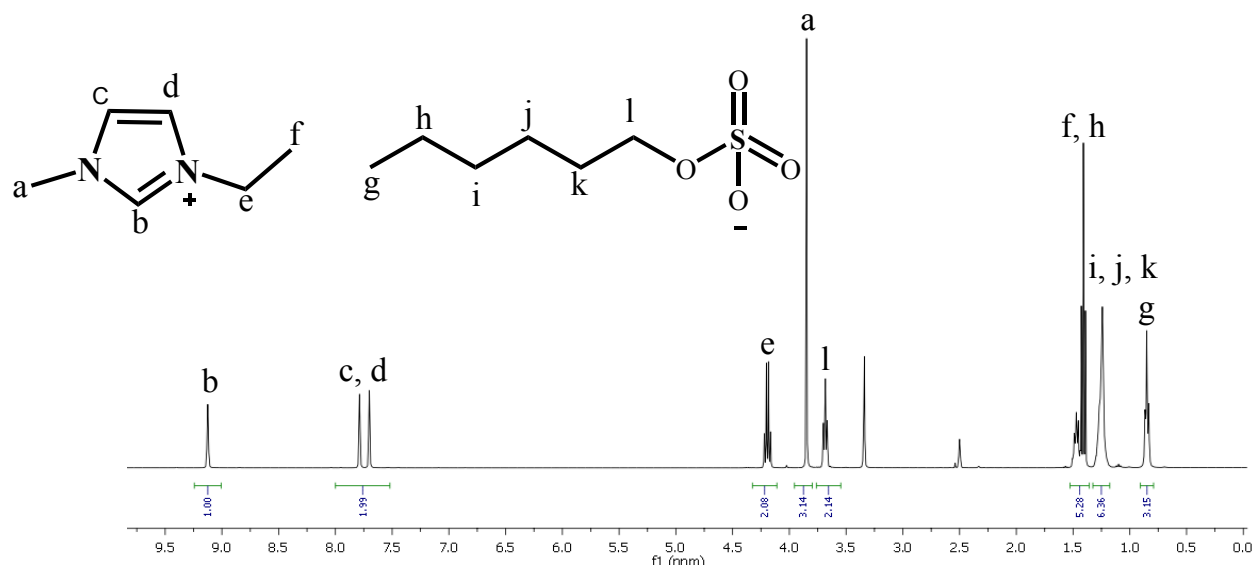


Fig. S3 ¹H NMR spectrum of EMIMHSU in DMSO-*d*₆.

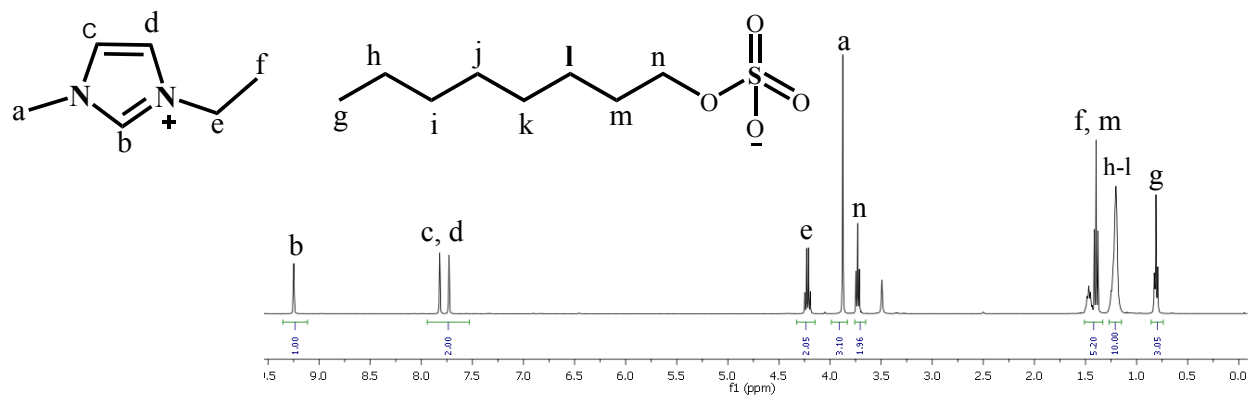


Fig. S4 ¹H NMR spectrum of EMIMOSU in DMSO-*d*₆.

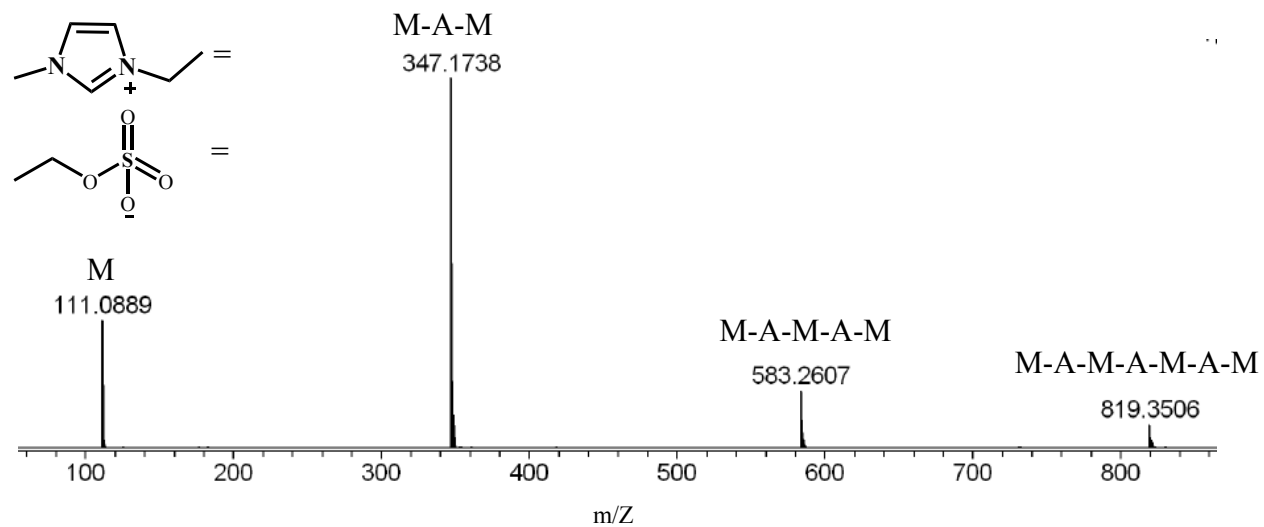


Fig. S5 High resolution mass spectrum of EMIMESU.

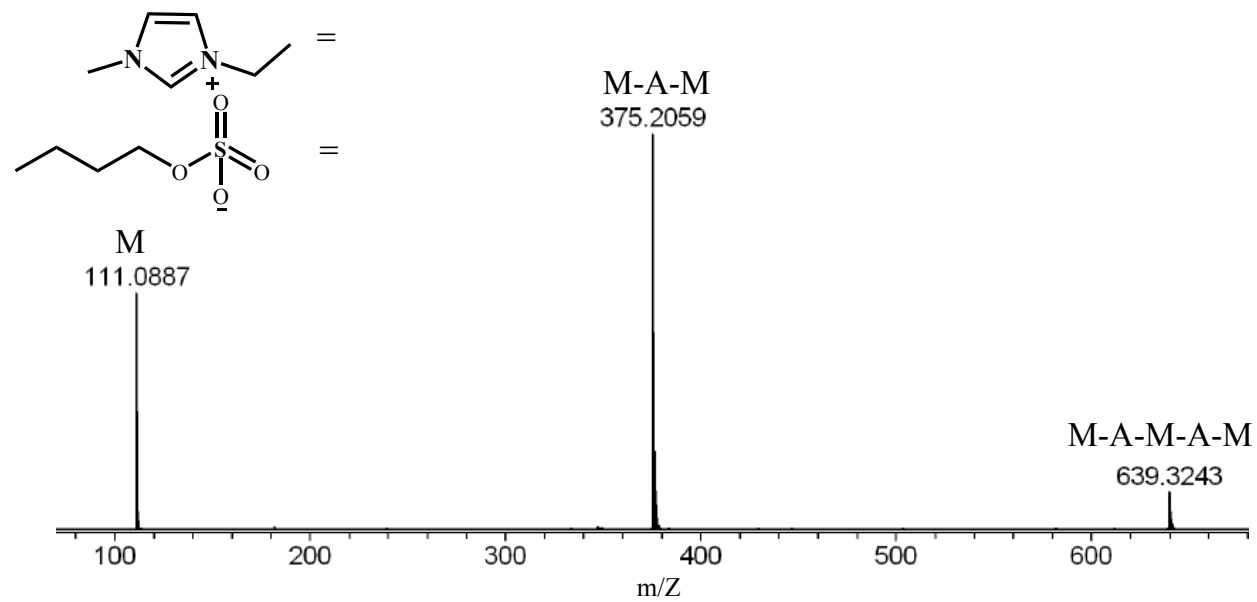


Fig. S6 High resolution mass spectrum of EMIMBSU.

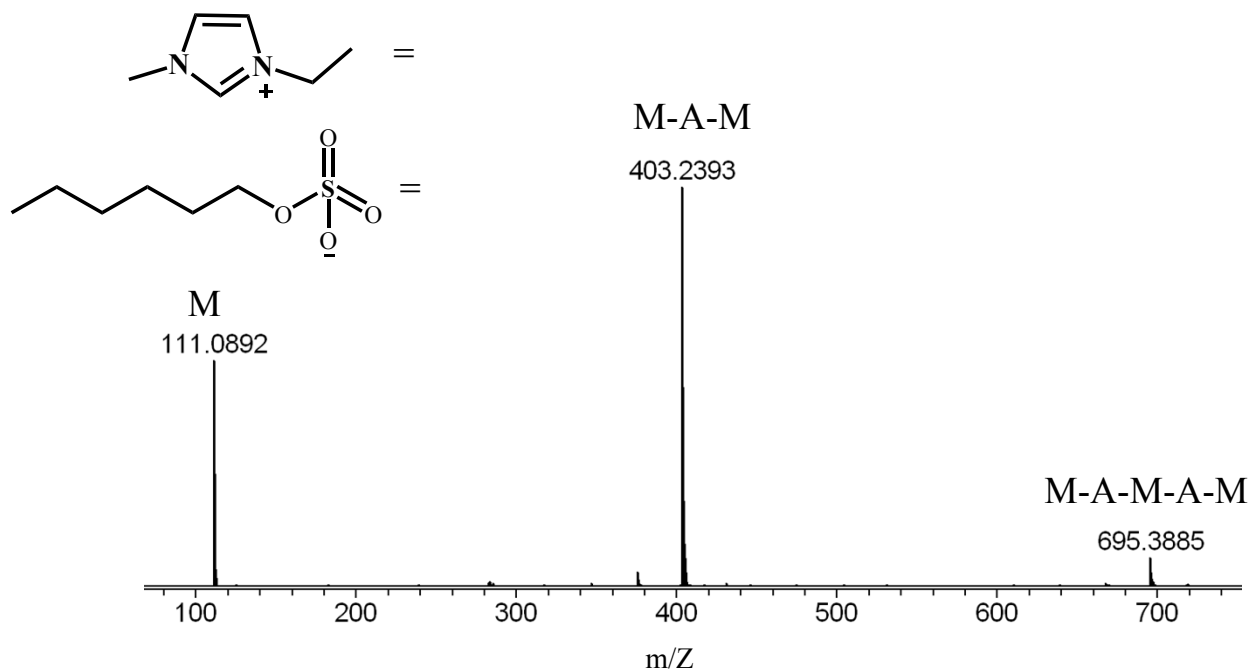


Fig. S7 High resolution mass spectrum of EMIMHSU.

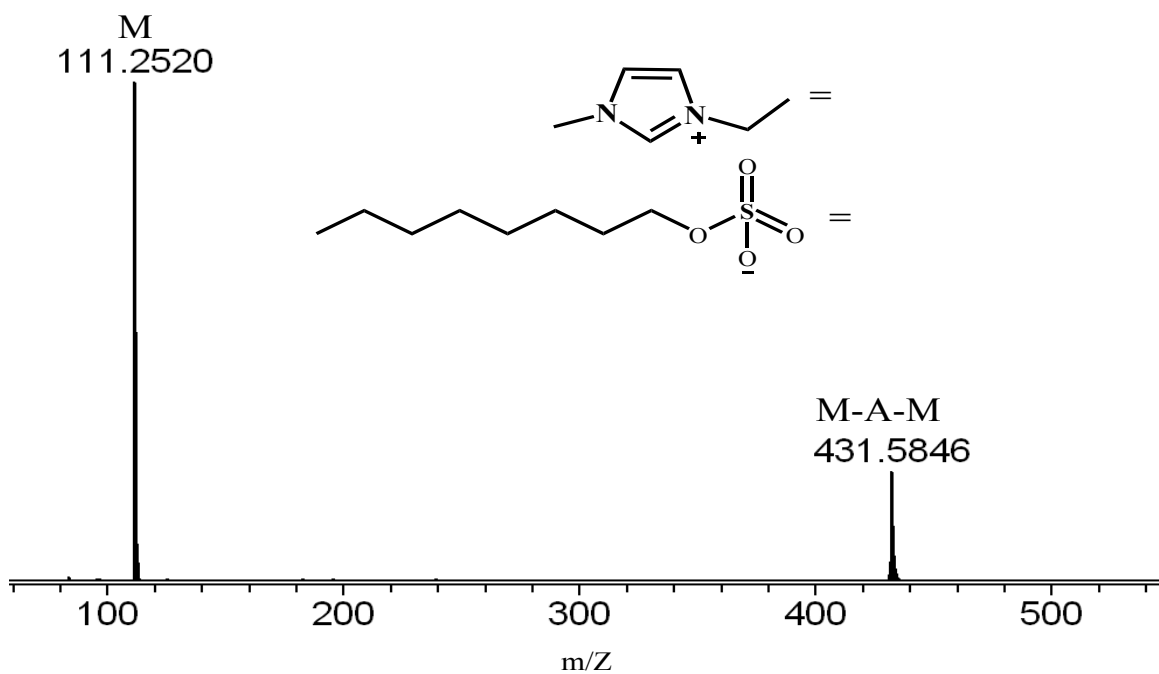


Fig. S7 High resolution mass spectrum of EMIMOSU.

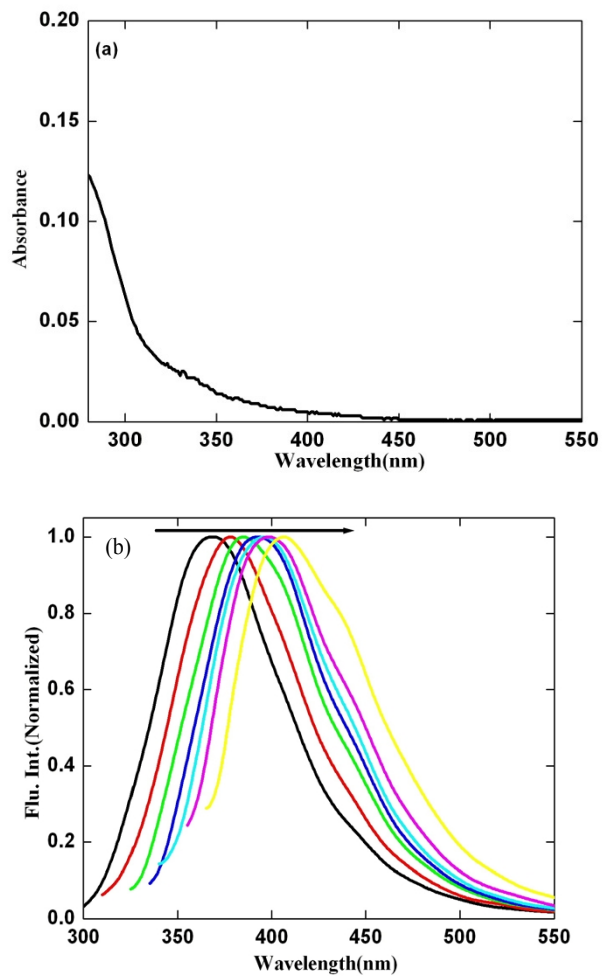


Fig. S8 (a) Absorption and (b) excitation wavelength dependence emission spectra of neat glycerol from 280-340 nm.

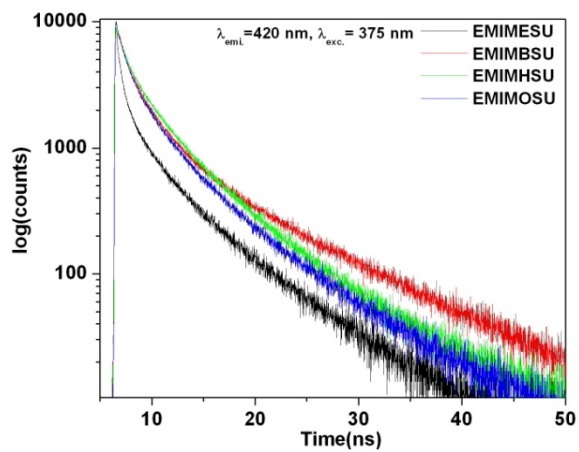


Fig. S9 Comparison of time resolved fluorescence decay profiles of 1-ethyl-3-methylimidazolium alkylsulfate ionic liquids. Neat ILs was excited 375 nm wavelength and emissions were monitored at 420 nm wavelength respectively.

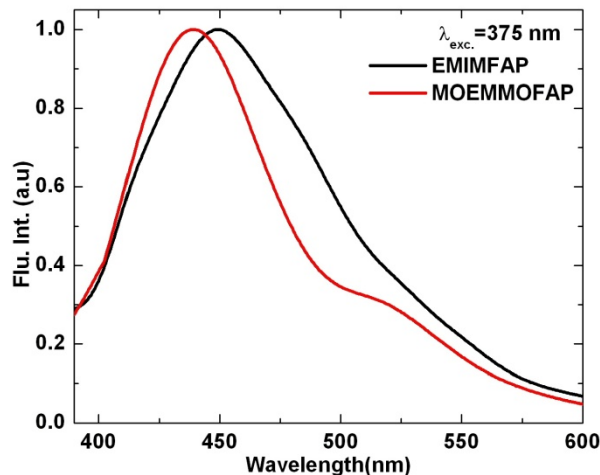


Fig. S10 Emission spectra of pure MOEMMOFAP and EMIMFAP ILs at the excitation wavelength 375 nm.

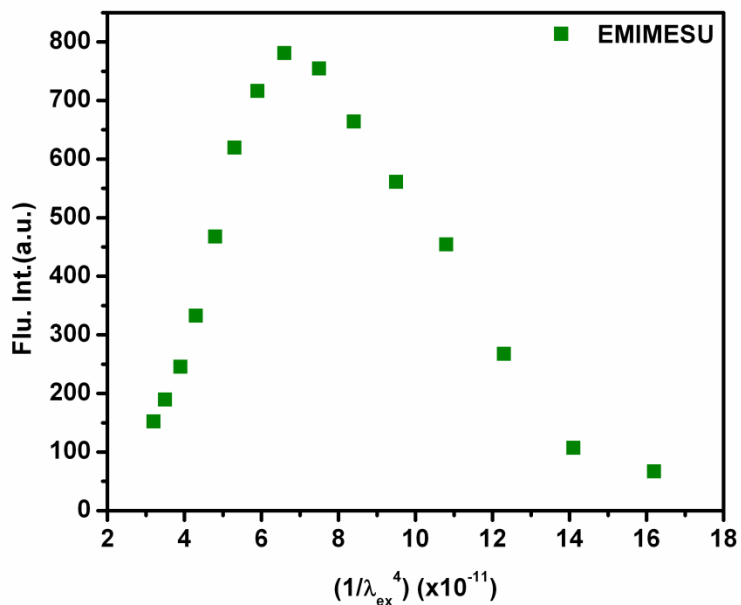


Fig. S11 Plot of fluorescence intensity vs λ^{-4} of neat EMIMESU. λ = excitation wavelengths.

Excitation energies and oscillator strengths of Emidazolium (EMIM) cation in gas phase at b3lyp/6-31+G(d,p) level:

Excited State 1: Singlet-A 5.1581 eV 240.37 nm f=0.0646 <S**2>=0.000

30 -> 31 0.69518

Excited State 2: Singlet-A 5.9628 eV 207.93 nm f=0.0638 <S**2>=0.000

29 -> 31 0.66793

30 -> 32 0.20719

Excited State 3: Singlet-A 6.9951 eV 177.24 nm f=0.1445 <S**2>=0.000

24 -> 31 -0.13050

27 -> 31 0.10448

28 -> 31 -0.17203

29 -> 31 -0.16961

29 -> 32 -0.18671

30 -> 32 0.59265

Excited State 4: Singlet-A 7.1386 eV 173.68 nm f=0.0096 <S**2>=0.000

27 -> 31 0.10823

28 -> 31 0.66166

29 -> 32 -0.15970

30 -> 32 0.10741

Excited State 5: Singlet-A 7.3600 eV 168.46 nm f=0.0195 <S**2>=0.000

27 -> 31 0.66104

29 -> 32 0.20110

Excited State 6: Singlet-A 7.4363 eV 166.73 nm f=0.1010 <S**2>=0.000

25 -> 31 -0.18104

27 -> 31 -0.15466

28 -> 31 0.15513

29 -> 32 0.57223

30 -> 32 0.19903

30 -> 33 0.13338

Excited State 7: Singlet-A 7.6008 eV 163.12 nm f=0.0212 <S**2>=0.000

29 -> 32 -0.11093

30 -> 33 0.66854

30 -> 34 0.11606

Fluorescence energies of emidazolium (EMIM) cation.:

Excited State 1: Singlet-A 0.2846 eV 4356.82 nm

Excited State 2: Singlet-A 2.8945 eV 428.34 nm

Excited State 3: Singlet-A 4.3179 eV 287.14 nm

Excited State 4: Singlet-A 4.5670 eV 271.48 nm

Excited State 5: Singlet-A 4.7188 eV 262.74 nm

Excited State 6: Singlet-A 4.9153 eV 252.24 nm

Excited State 7: Singlet-A 5.4598 eV 227.09 nm