Supporting Information

Photophysics of Bis-Bipyridyl Nitro Complexes of Ruthenium(II) with Pyridine Ligands: Substituent Effects

Sergey V. Litke

Faculty of Physics of St. Petersburg State University, St. Petersburg, 198904 Russia

*Aleksei Yu. Ershov**

Institute of Chemistry of St. Petersburg State University, St. Petersburg, 198904 Russia

E-mail: ershov-alex@mail.ru

*Thomas J. Meyer**

Department of Chemistry, The University of North Carolina, Chapel Hill, North Carolina, 27599-3290, USA. E-mail: tjmeyer@unc.edu

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Figure S1. Excitation spectra at emission maxima and luminescence spectra (inserted) for the series of *cis*-$[Ru(bpy)_2(L)(NO_2)]^+$ complexes in EtOH – MeOH (4:1) at 77 K. The numbering of the complexes (ligands L) is keyed to Table 1.

Figure S2. Excitation spectra at emission maxima and luminescence spectra (inserted) of *cis*-$[Ru(bpy)_2(L)(NO_2)]^+$ complexes in EtOH – MeOH (4:1) at 77 K. The numbering of the complexes (ligands L) is keyed to Table 1.

Figure S3. Luminescence spectrum of *cis*-$[Ru(bpy)_2(Py)(NO_2)]^+$ complex in EtOH – MeOH (4:1) at 77 K (black line) and the theoretical fit according to eq. 1 (green line) with $\bar{\nu}_{oo}$ = 17.39 KK; $\boldsymbol{S_m}$ = 0.77; $\boldsymbol{S_l}$ = 1.15; $\bar{\nu}m$.= 1400 cm^{-1}, and $\bar{\nu}_{1/2}$ = 790 cm^{-1} (see Table 3).

Figure S4. Plot of $\bar{\nu}_{oo}$ vs pKa of free ligand L for the series of complexes of the type *cis*-$[Ru(bpy)_2(L)(X)]^+$ in EtOH – MeOH (4:1) at 77 K (■ : X = NO_2^-, data from Table 2 and 3; ▲ : X = Cl^-, data taken from ref [57]).

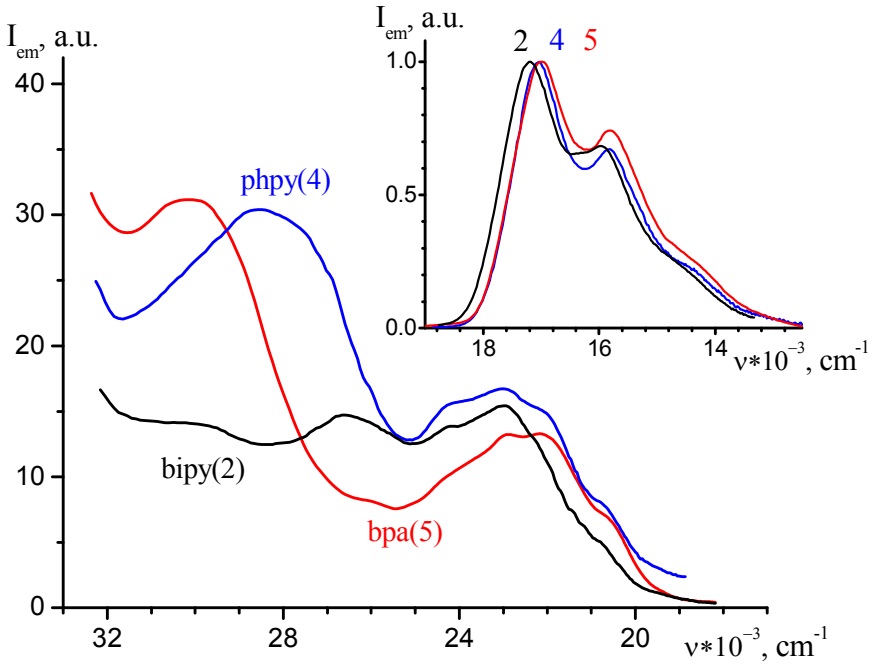
I em, a.u.
40
30
20
10
0
32
28
24
20
ν*10−3, cm-1
phpy(4)
bipy(2)
bpa(5)
I em, a.u.
2 4 5
1.0
0.5
0.0
18
16
14
ν*10−3, cm-1

Figure S1.

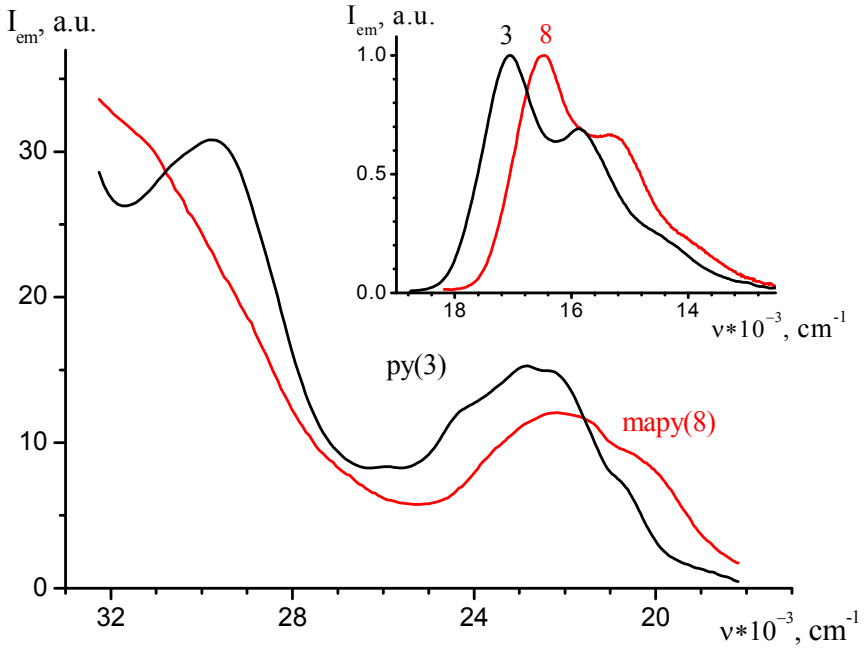

Figure S2.

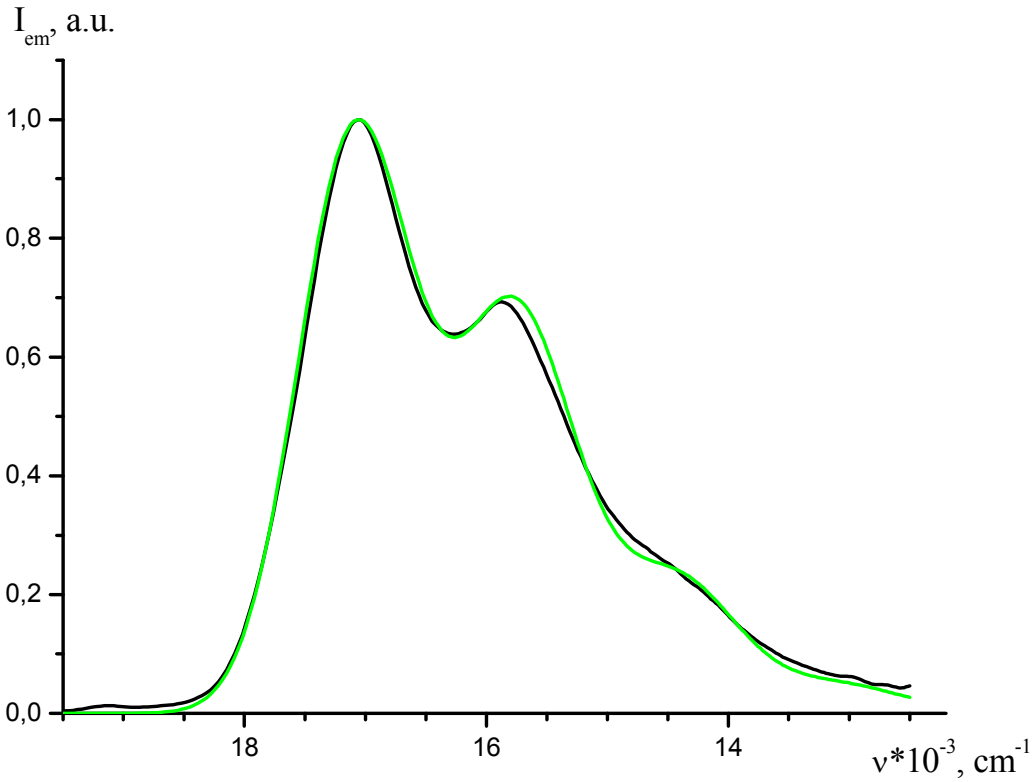

Figure S3.

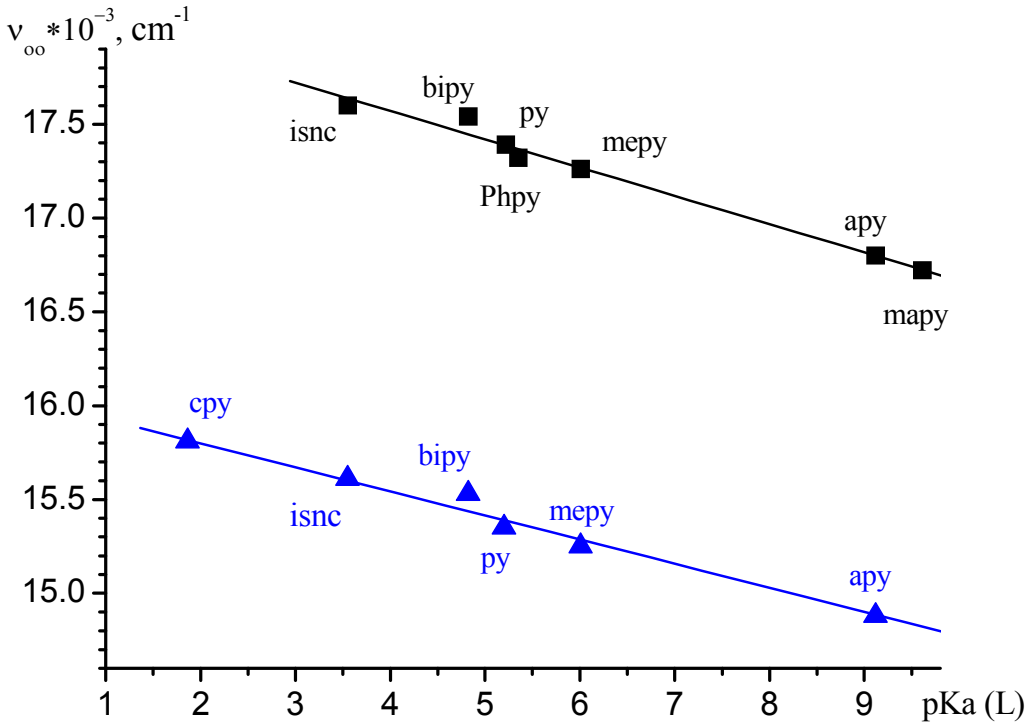
$\nu_{oo}*10^{-3}$, cm^{-1}
17.5
17.0
16.5
16.0
15.5
15.0
1
2
3
4
5
6
7
8
9
pKa (L)
isnc
bipy
py
Phpy
mepy
apy
mapy
cpy
isnc
bipy
py
mepy
apy

Figure S4.