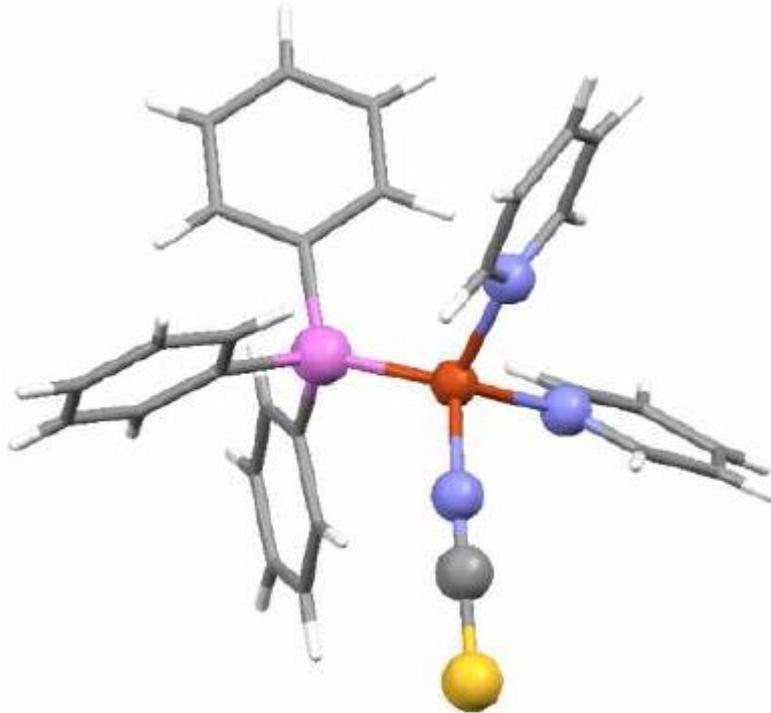


ESPERIENZA 3

Struttura allo stato solido



**Cu(I), d^{10} , Geometria tetraedrica
diamagnetico**

Distanze di legame (Å)

Cu-NCS 2.013(2)

Cu-P(1) 2.1974(5)

Cu-N(1) 2.091(2)

Cu-N(2) 2.070(1)

S-C 1.638(2)

C-N 1.168(3)

Angoli di legame (°)

**SCN-Cu-N 99.58(8)
106.70(6)**

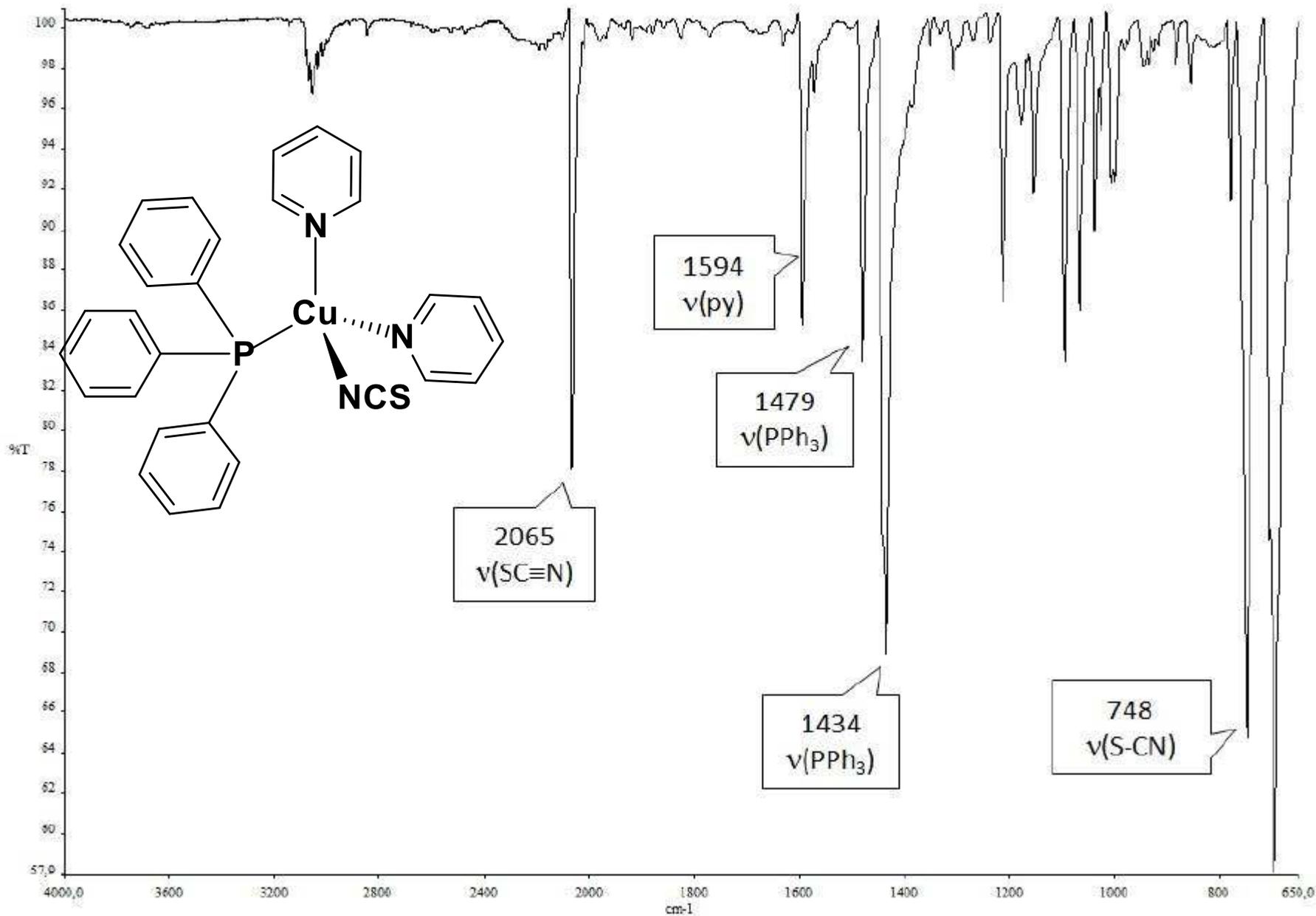
SCN-Cu-P 115.34(6)

**P-Cu-N 116.27(4)
116.27(4)**

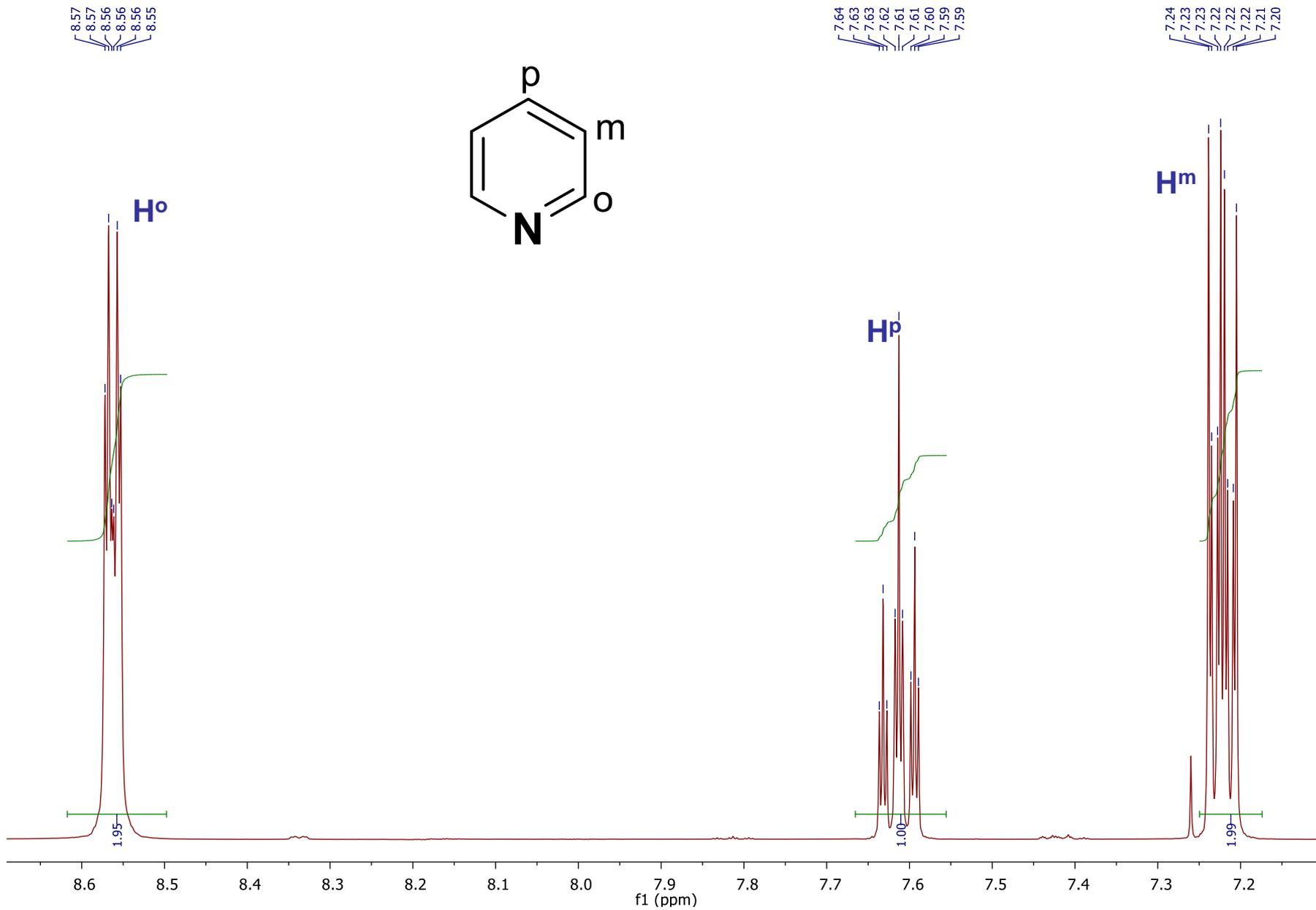
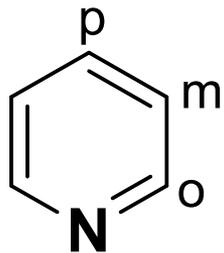
Cu-N-C 157.4(2)

N-C-S 179.5(2)

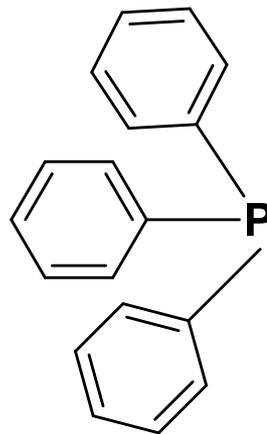
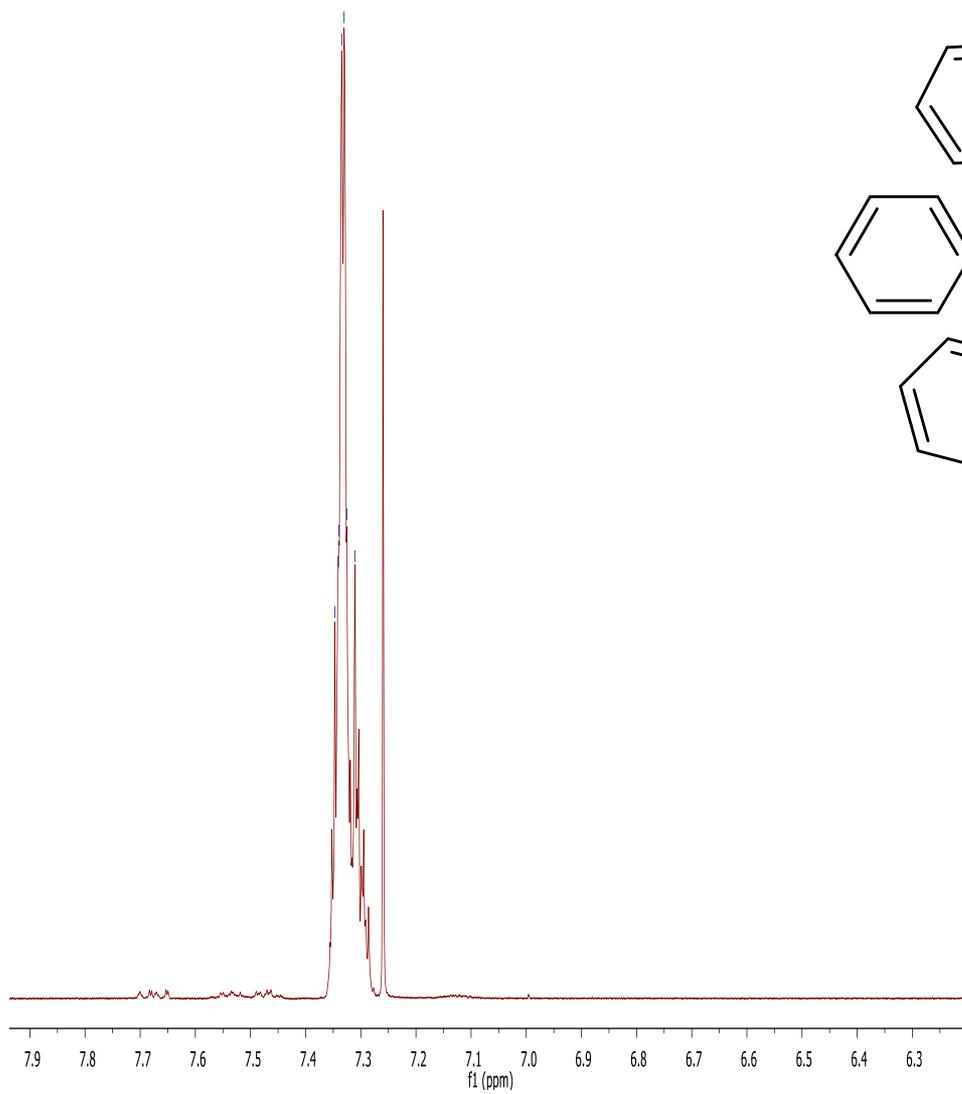
Spettro IR di



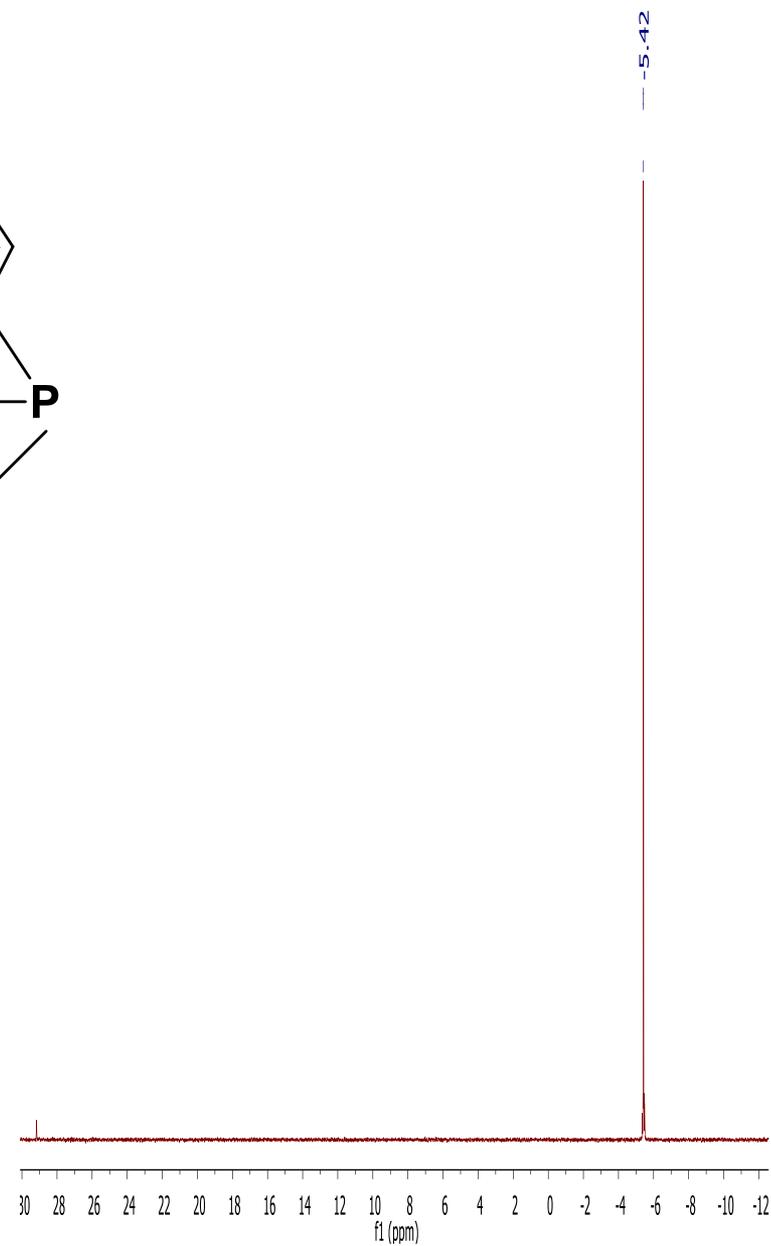
Spettri ^1H NMR in CDCl_3 , a t.a. di



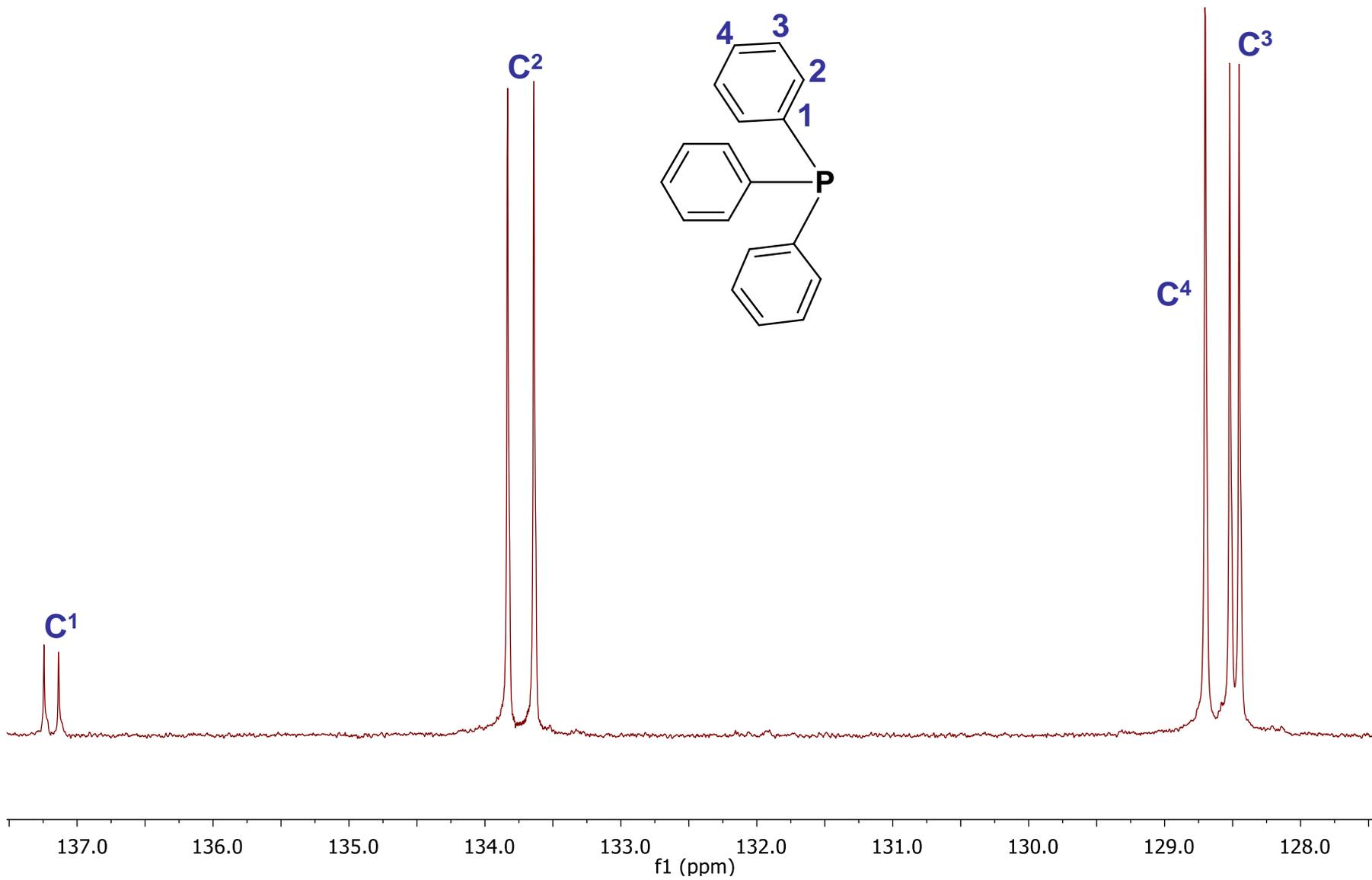
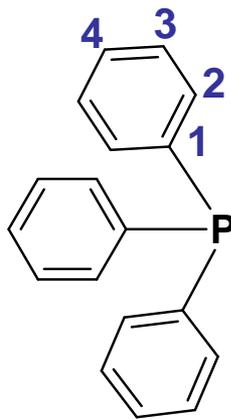
Spettri ^1H NMR in CDCl_3 , a t.a. di



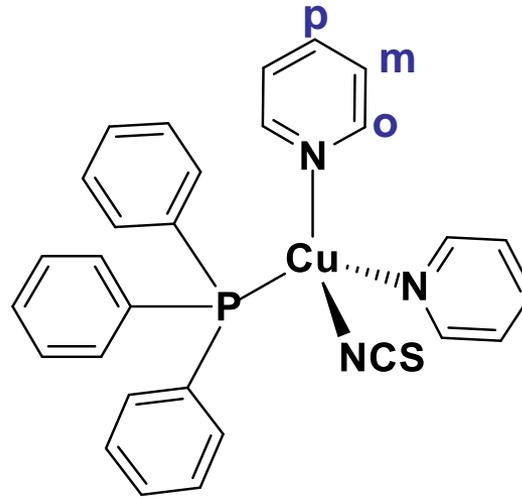
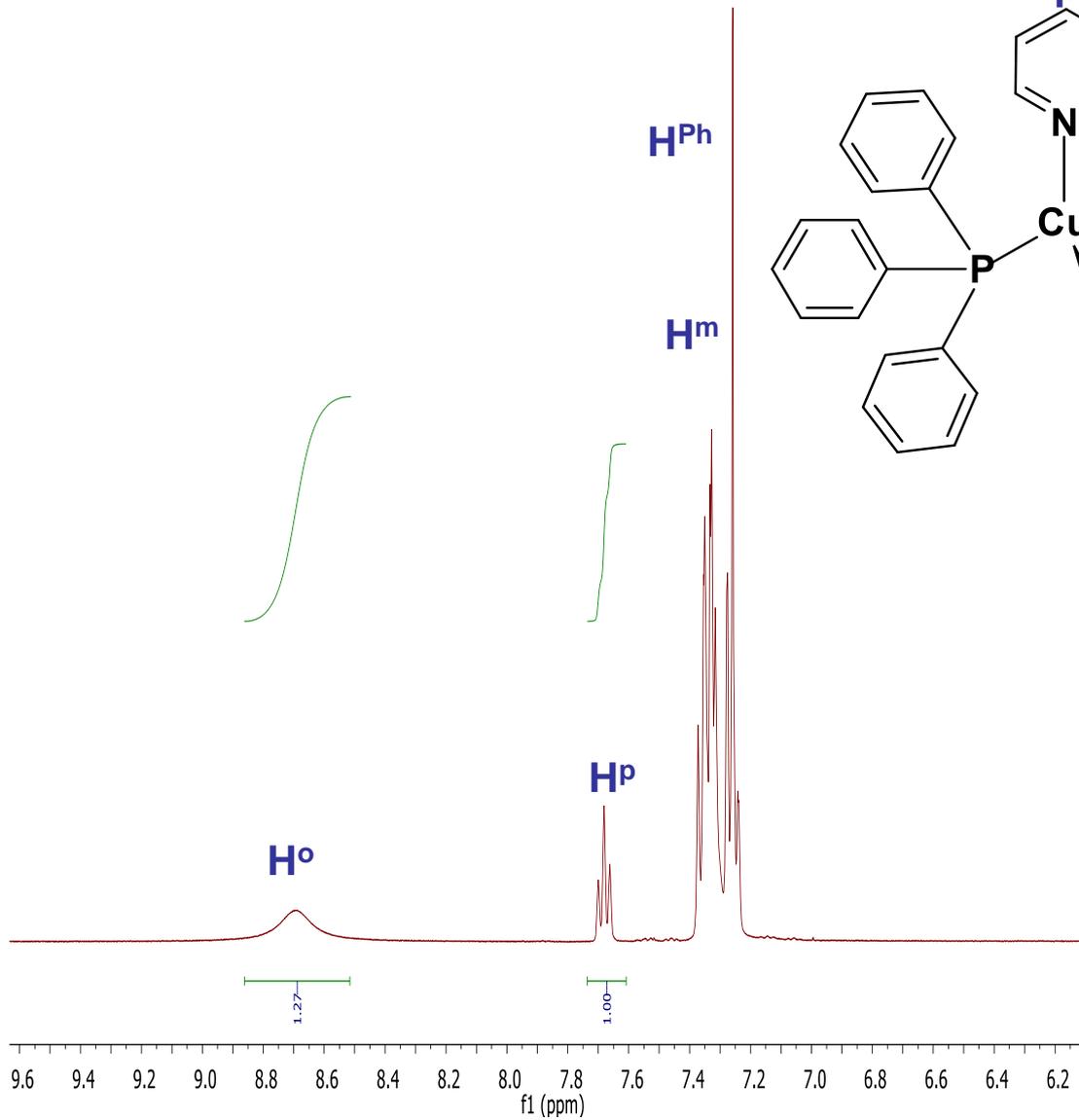
Spettro ^{31}P NMR



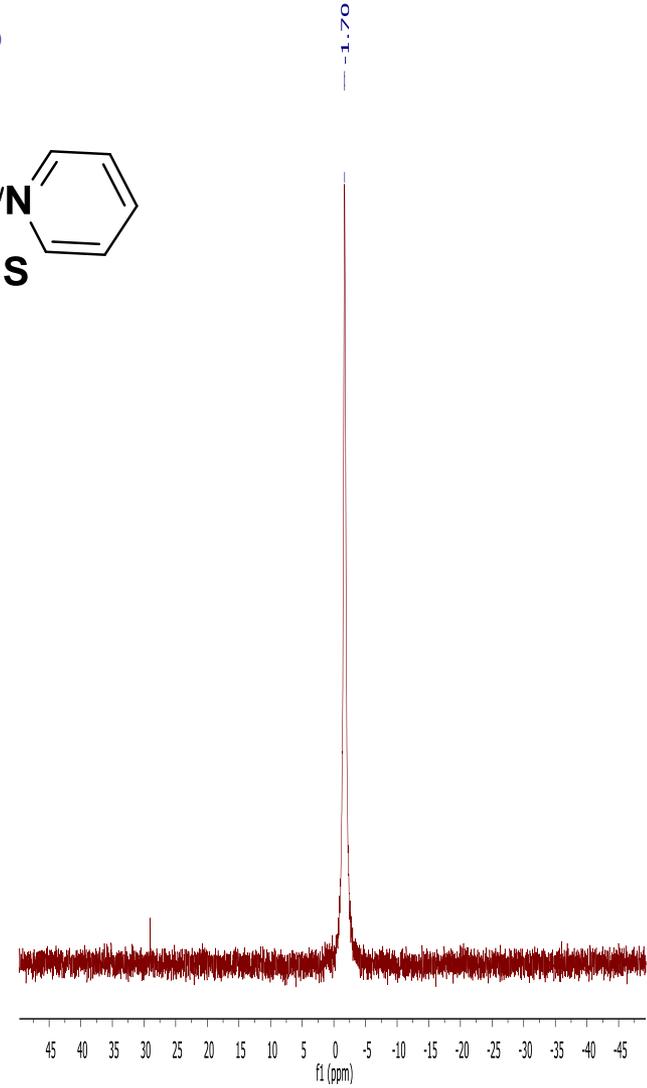
Spettri ^{13}C NMR in CDCl_3 , a t.a. di



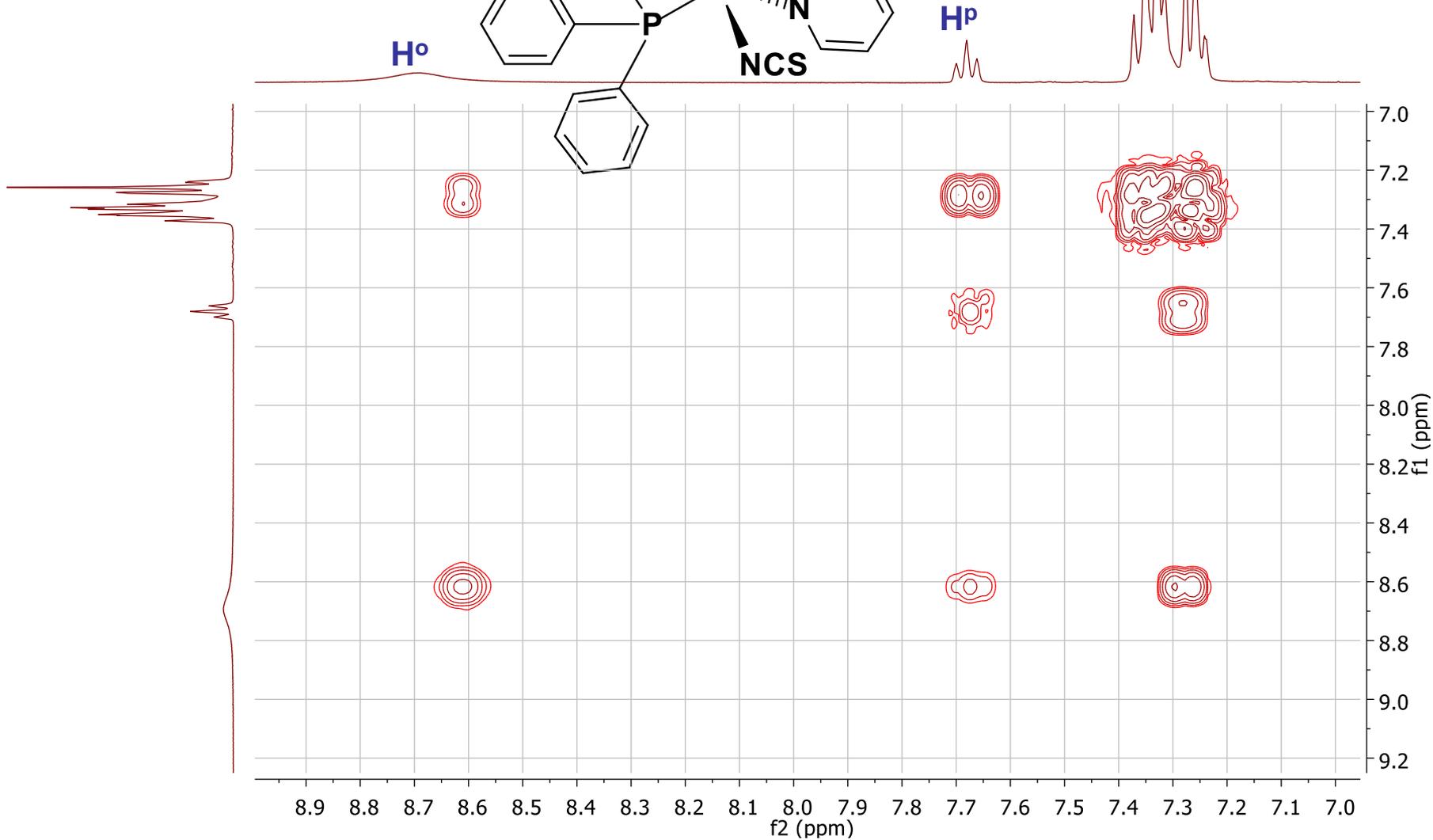
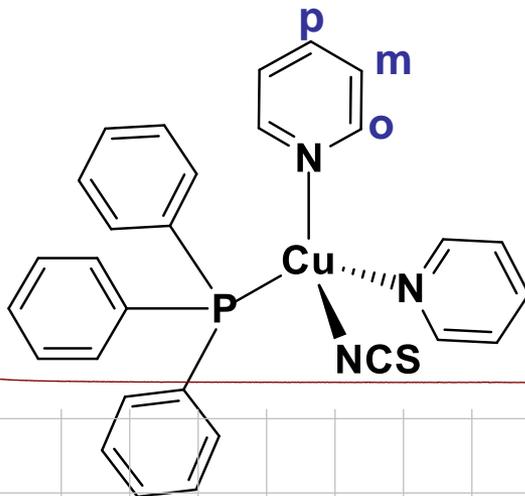
Spettri ^1H NMR in CDCl_3 , a t.a. di



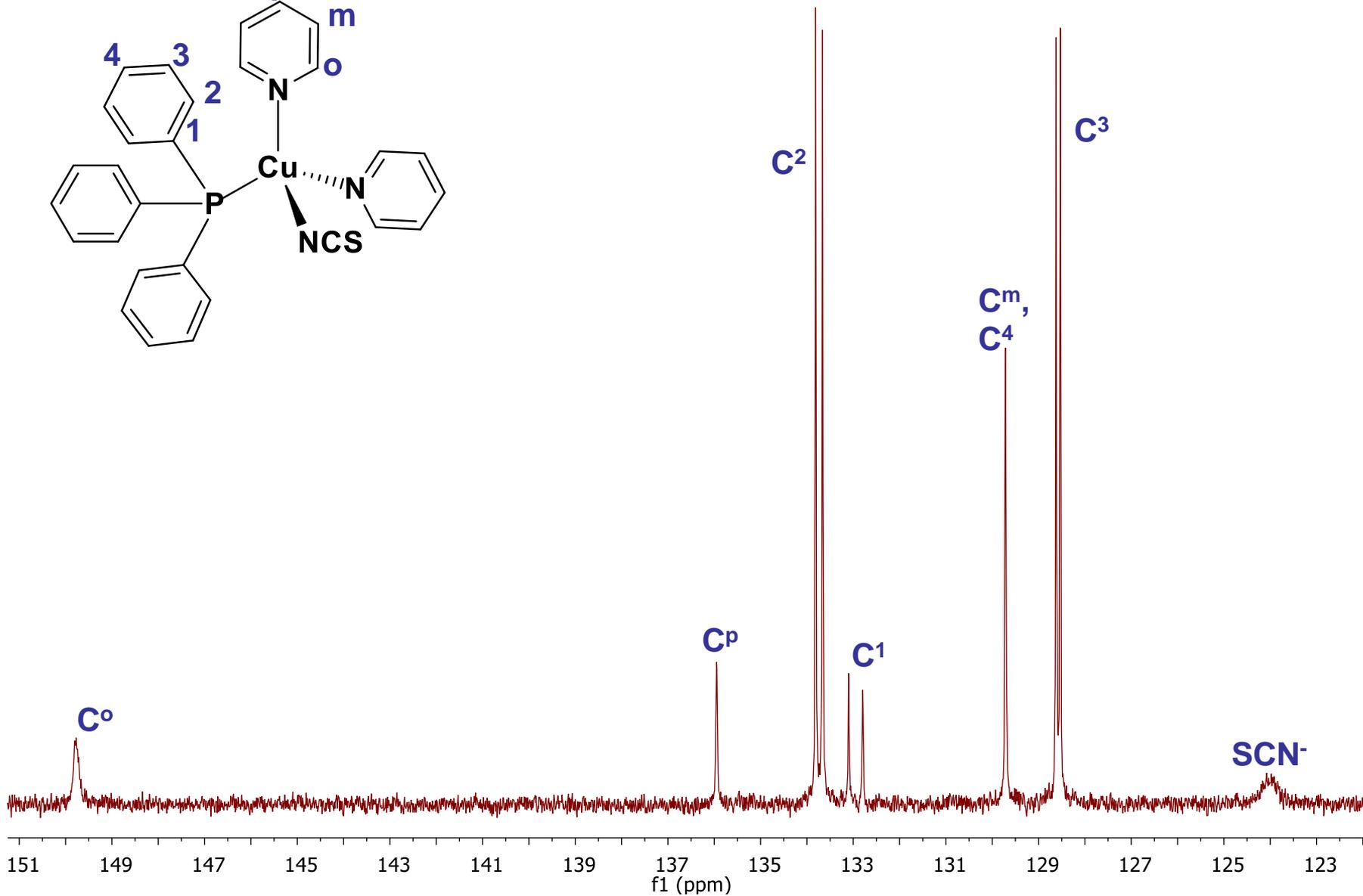
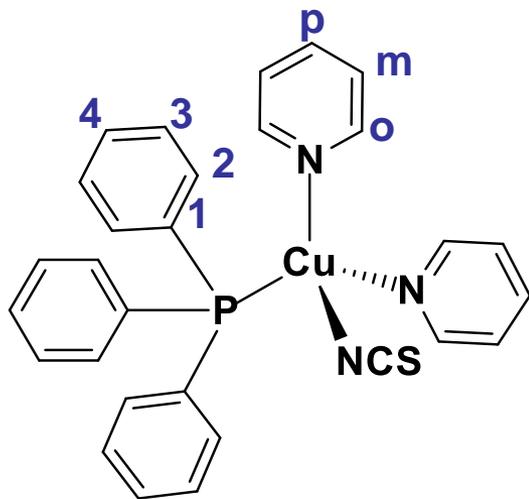
Spettro ^{31}P NMR



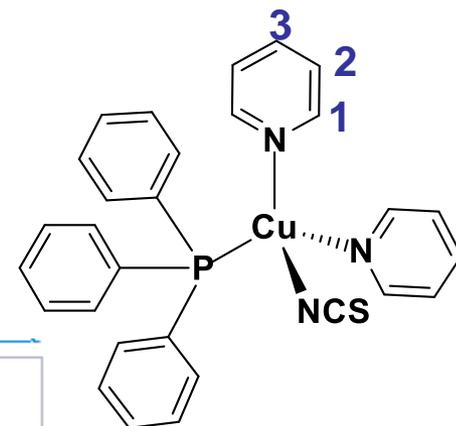
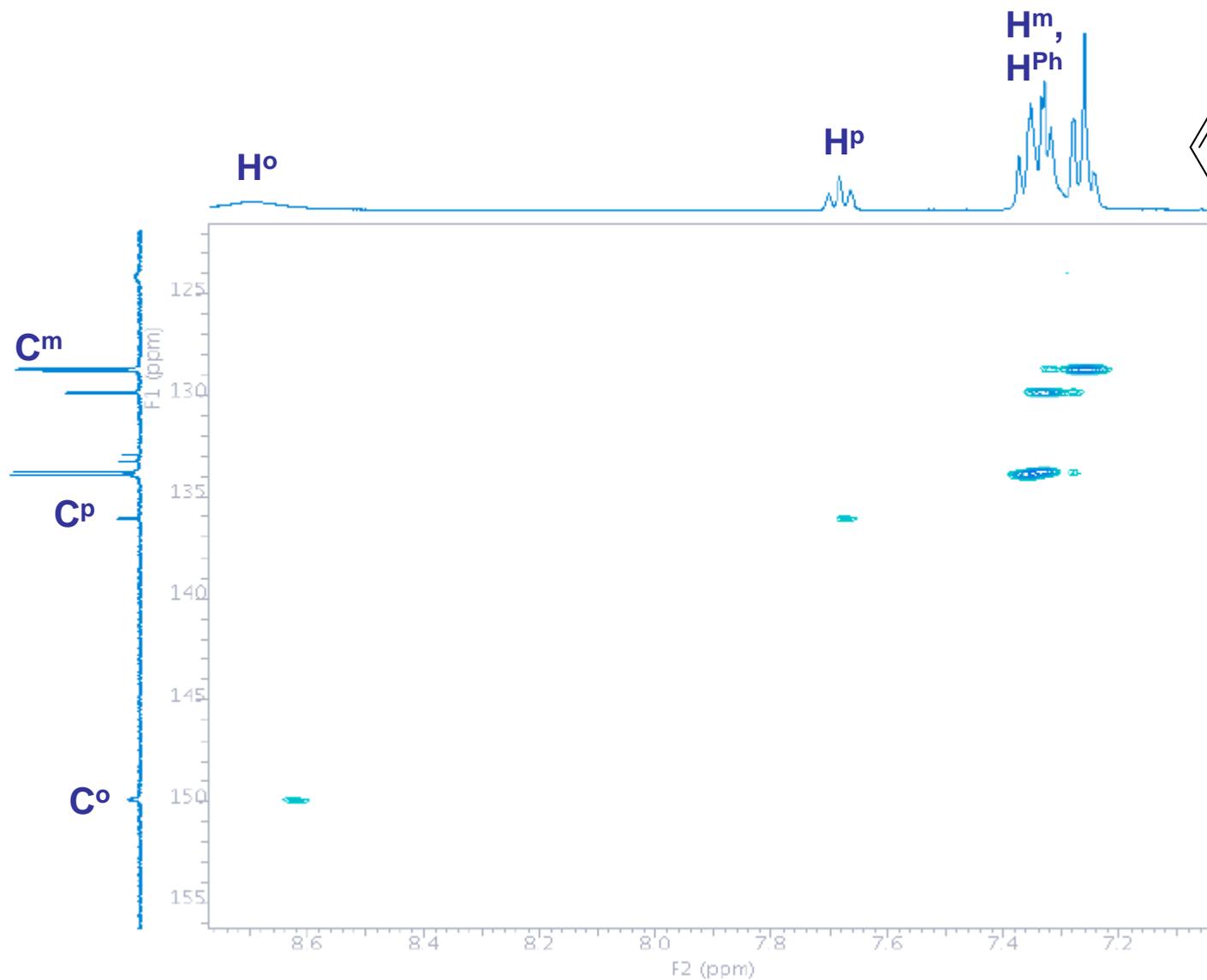
Spettro $^1\text{H}, ^1\text{H}$ COSY in CDCl_3 , a t.a. di



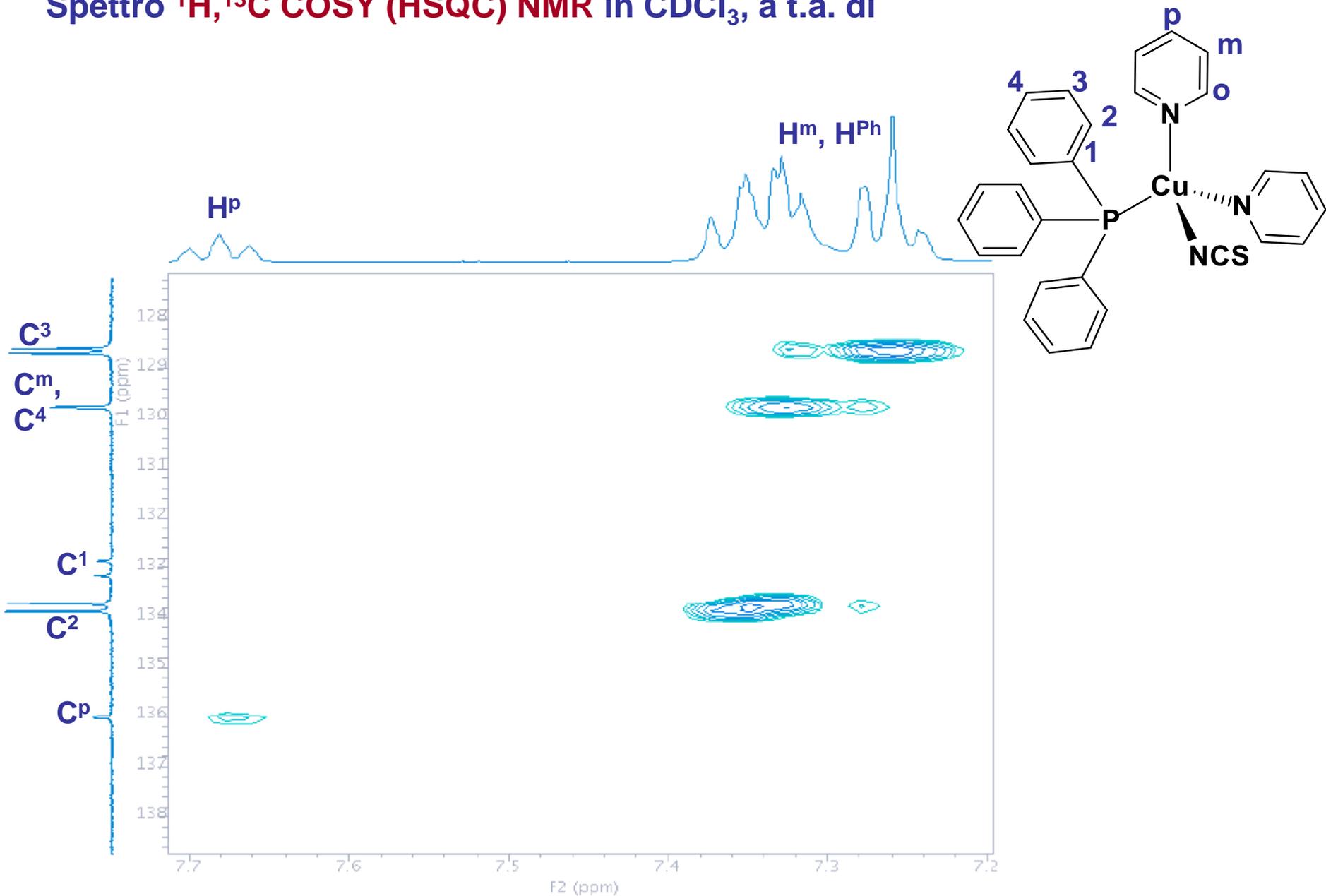
Spettri ^{13}C NMR in CDCl_3 , a t.a. di



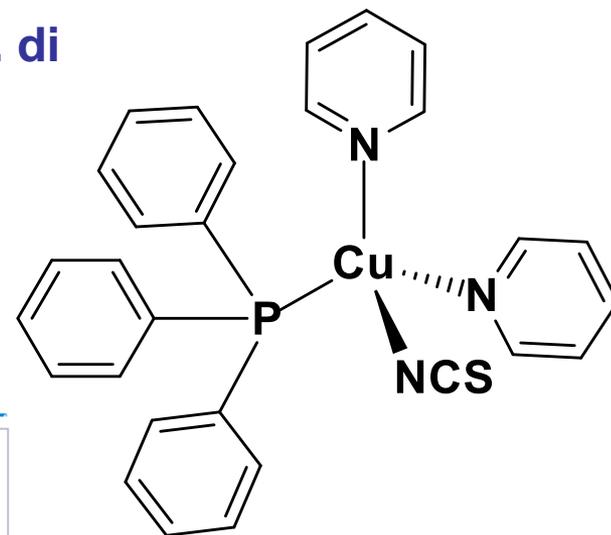
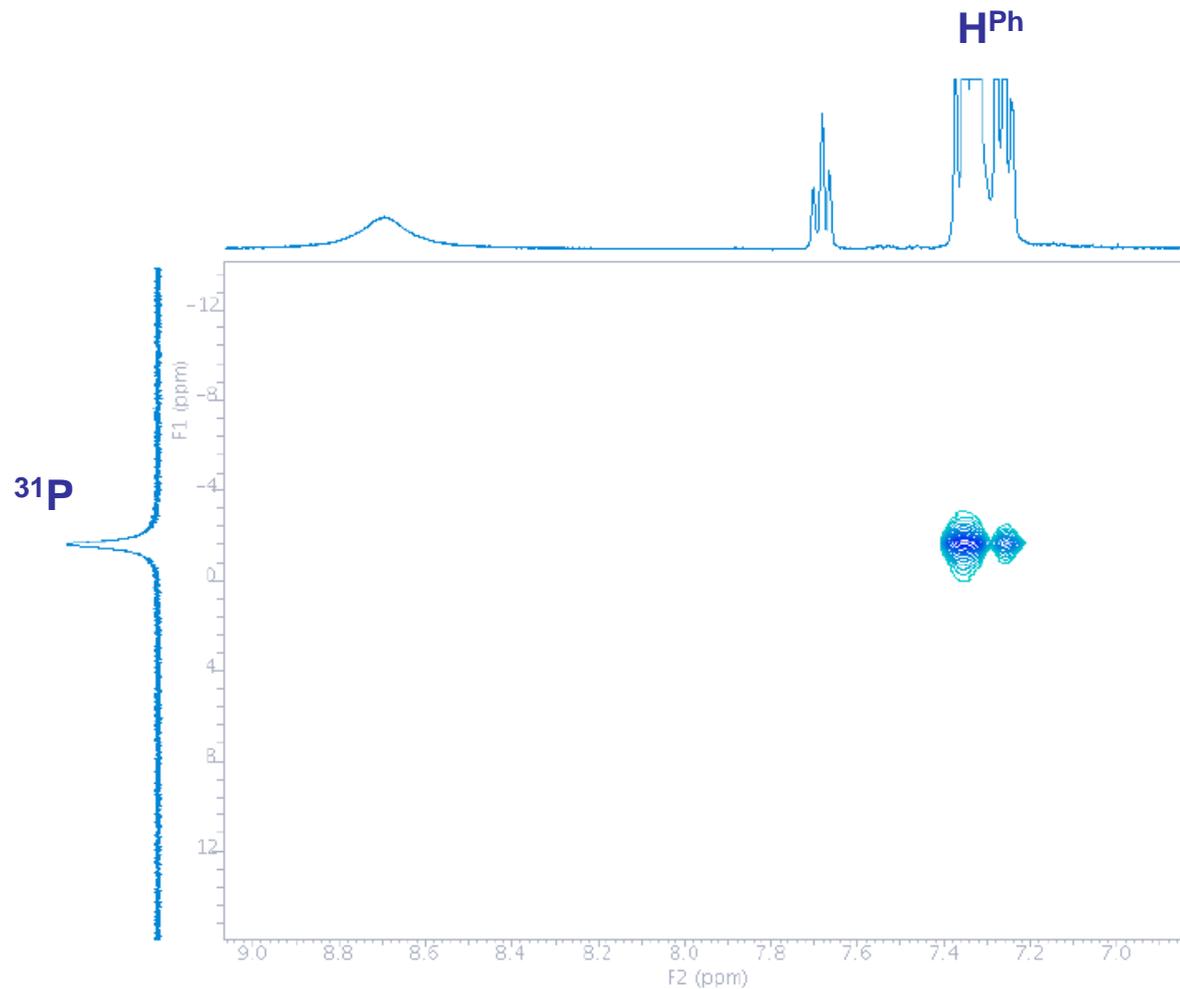
Spettro $^1\text{H},^{13}\text{C}$ COSY (HSQC) NMR in CDCl_3 , a t.a. di



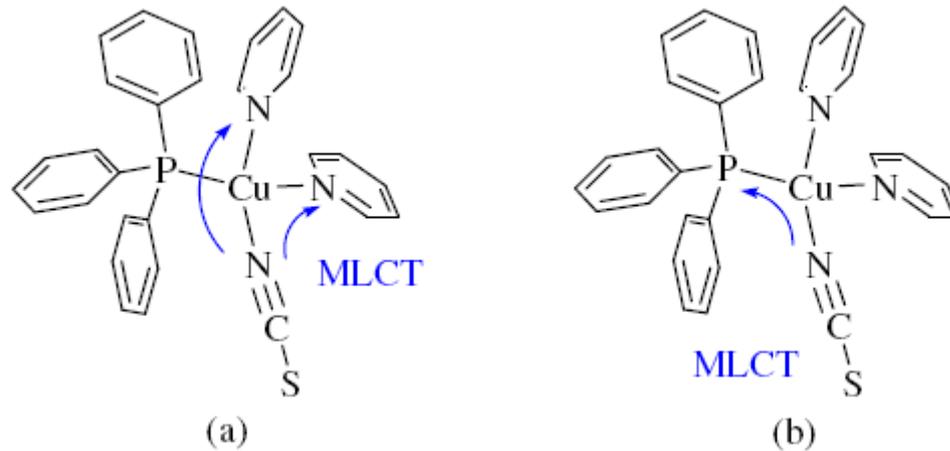
Spettro $^1\text{H}, ^{13}\text{C}$ COSY (HSQC) NMR in CDCl_3 , a t.a. di



Spettro $^1\text{H},^{31}\text{P}$ COSY (HMBC) NMR in CDCl_3 , a t.a. di



La **fotoluminescenza**



La **triboluminescenza**

Ipotesi sulla natura della triboluminescenza:

La frammentazione del cristallo dovrebbe comportare la rottura dei legami Cu-NCS, in modo tale che un numero sufficiente di elettroni di legame (o di ioni negativi NCS^-) rimane sulla superficie della frattura. Allo stesso tempo dei frammenti carichi positivamente si formano sull'altra superficie.

La ricombinazione delle cariche comporta una scarica elettrica che è responsabile della luce emessa.