

## **Supporting Information**

### **A Novel Bifunctional Ligand for the Synthesis of Polynuclear Alkynyl Complexes**

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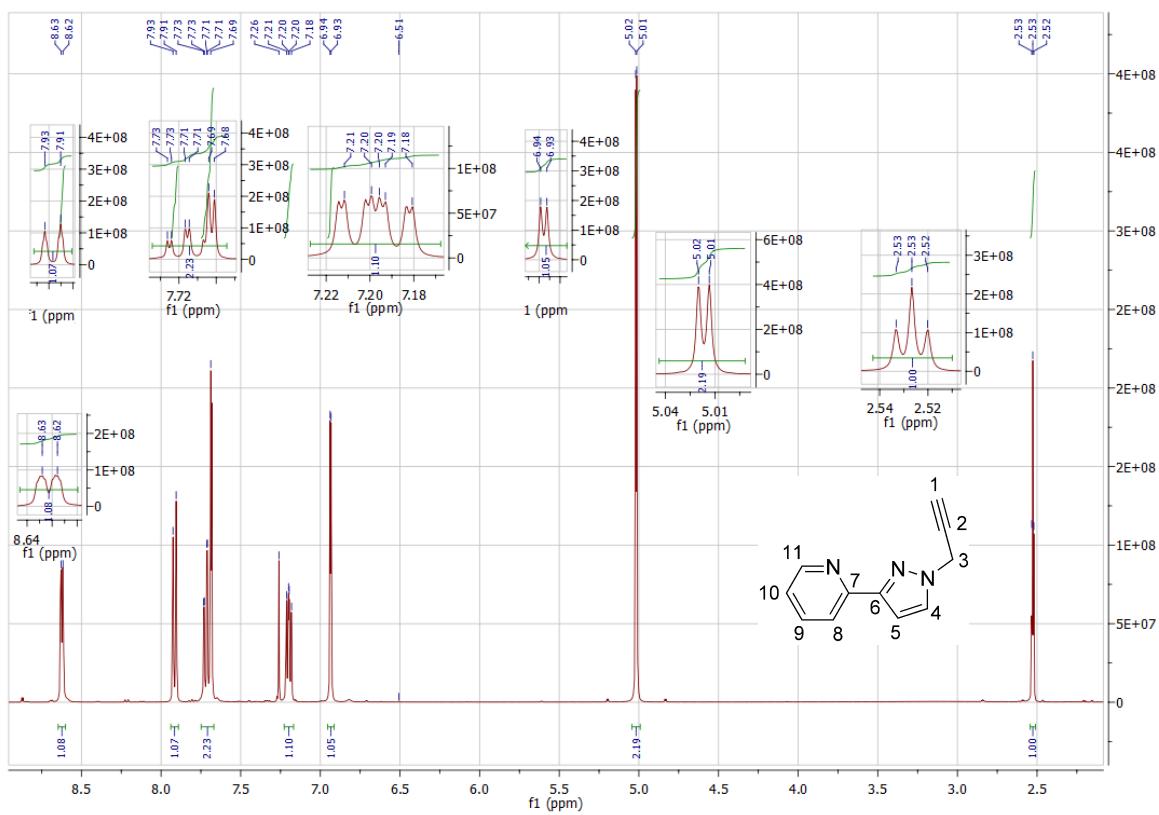
Fachbereich Chemie, Technische Universität Kaiserslautern, Erwin-Schrödinger-Str. 52-54,  
67663 Kaiserslautern, Germany

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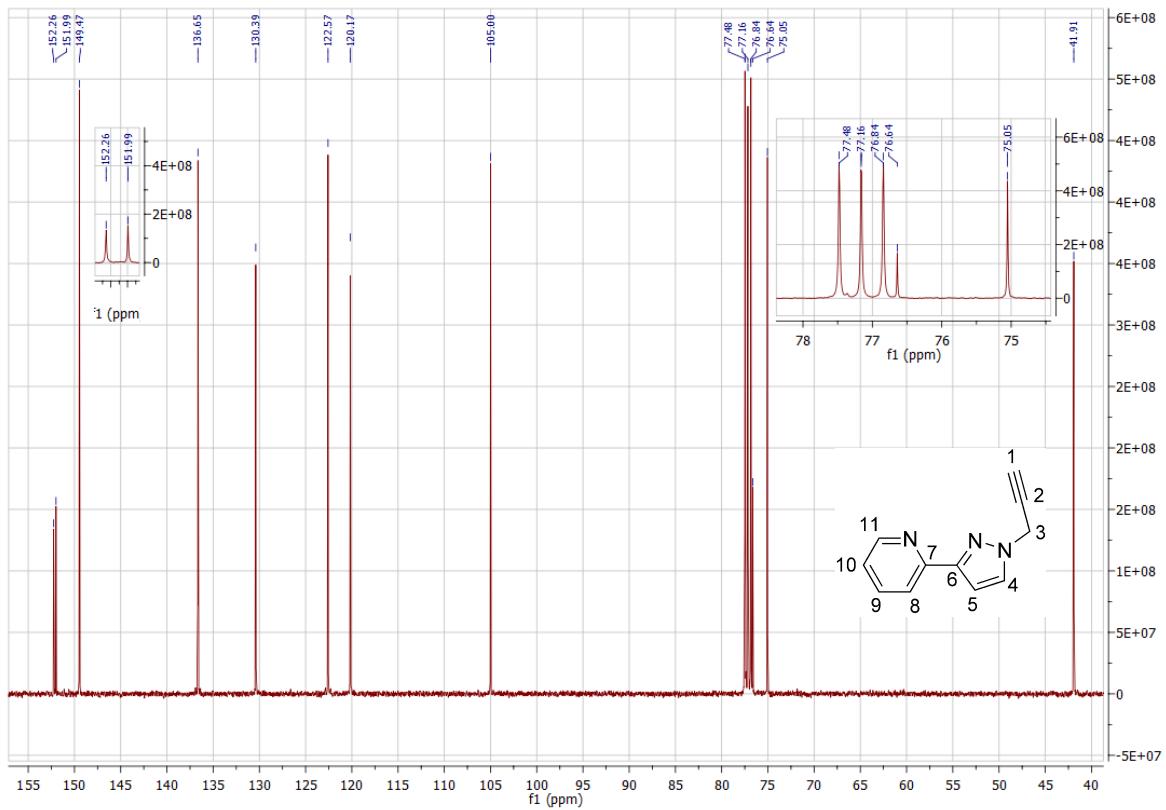
### **NMR and IR spectra**

#### **2-(1-(Prop-2-yn-1-yl)-1*H*-pyrazol-3-yl)pyridine (1)**

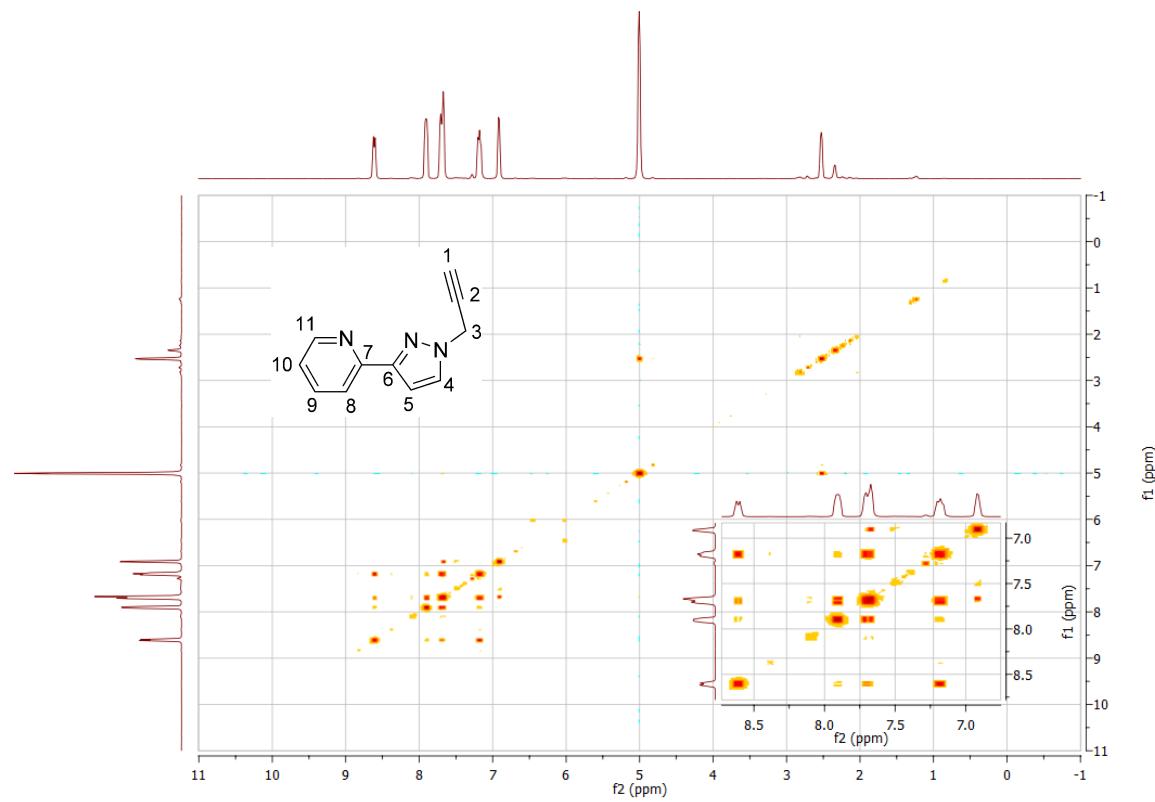
<sup>1</sup>H NMR spectrum



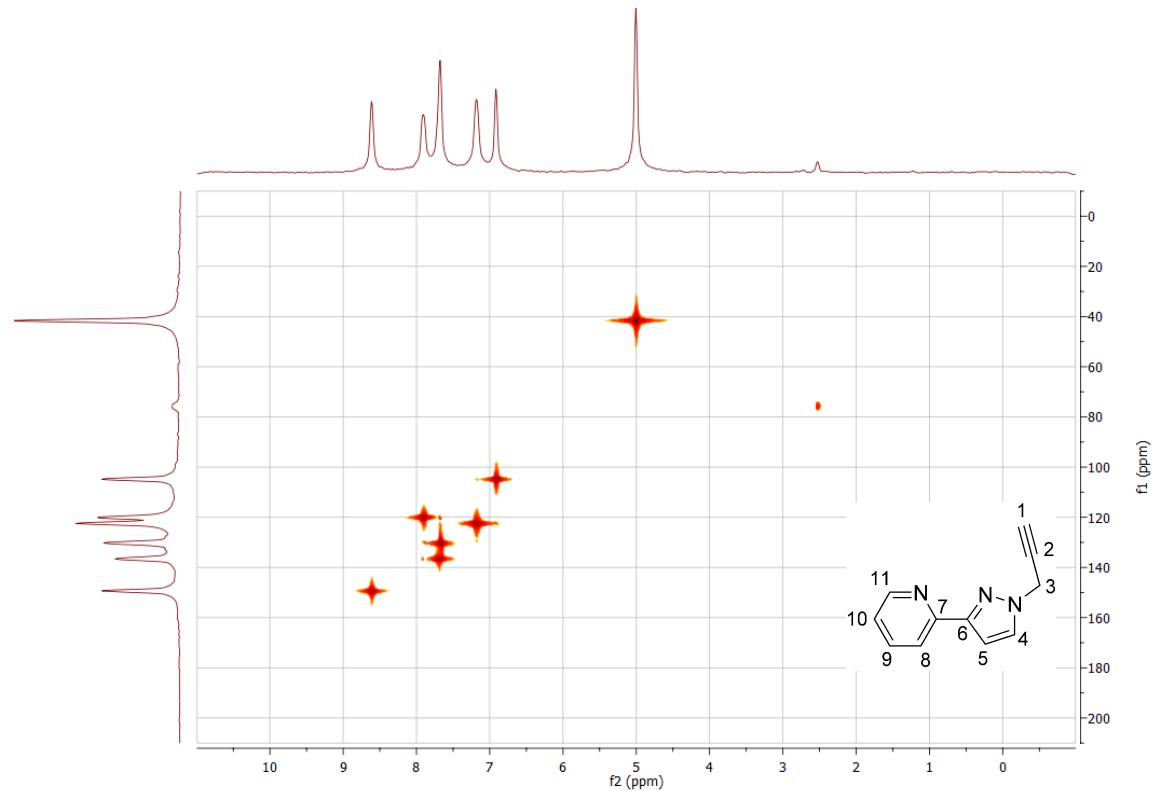
## <sup>13</sup>C NMR spectrum



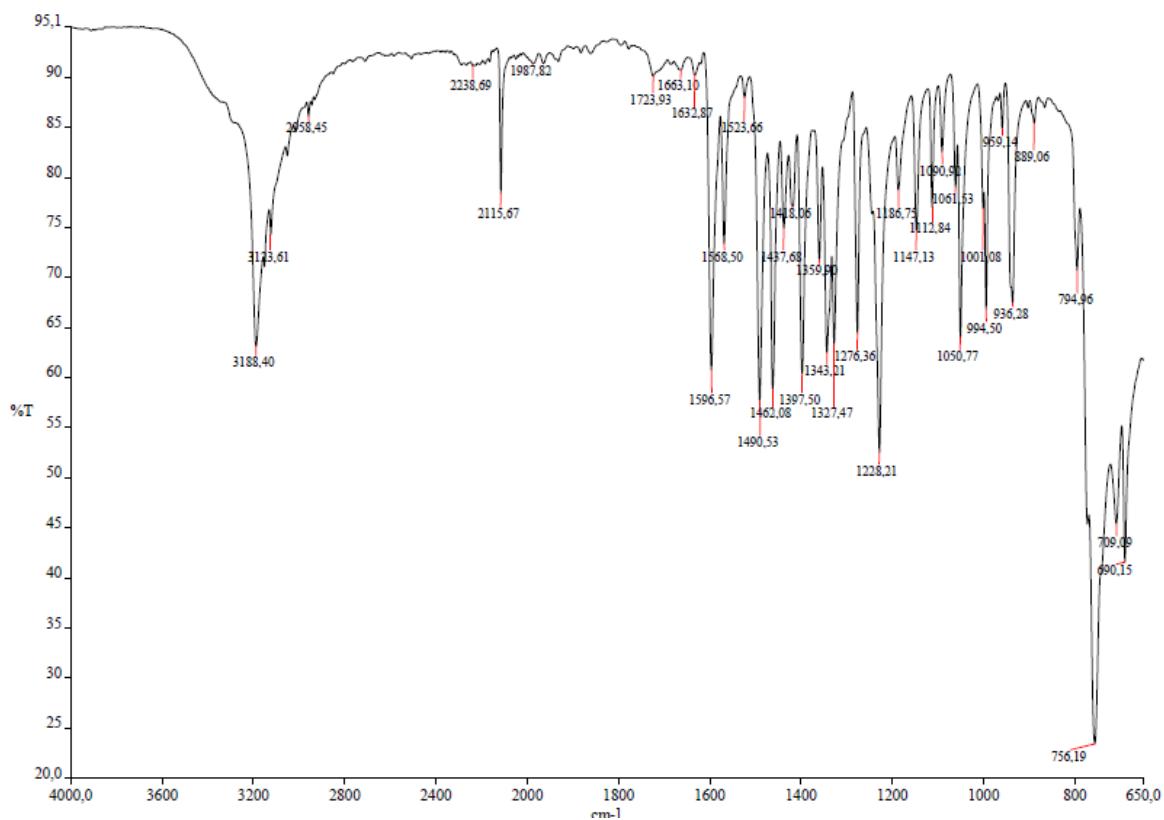
### HH-COSY NMR spectrum



### HMQC NMR spectrum

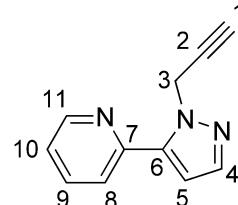


IR spectrum



**2-(1-(Prop-2-yn-1-yl)-1*H*-pyrazol-5-yl)pyridine (2)**

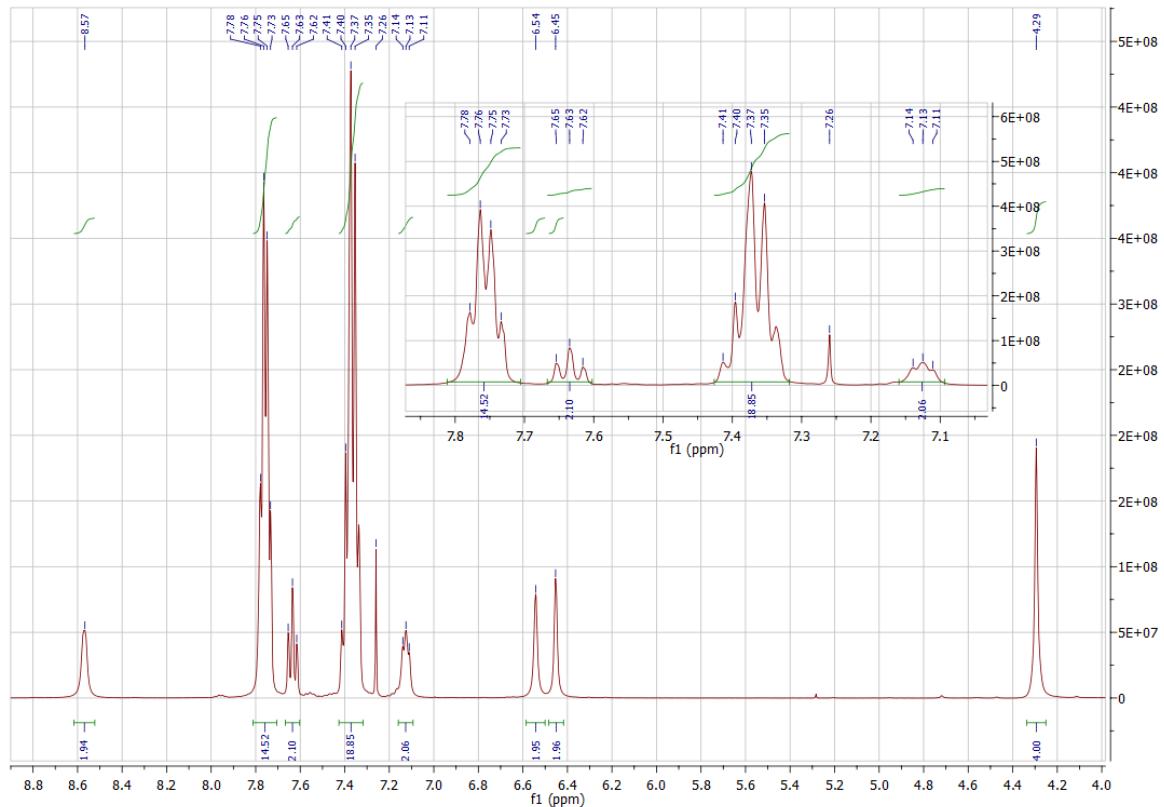
<sup>1</sup>H NMR (400 MHz, 25 °C, CDCl<sub>3</sub>): δ = 8.67 (d, <sup>3</sup>J<sub>HH</sub> = 4 Hz, 1 H, H11), 7.75 (d, <sup>3</sup>J<sub>HH</sub> = 8 Hz, 1 H, H8), 7.63-7.59 (m, 2 H, H9, H4), 7.27-7.25 (m, 1 H, H10), 6.63 (d, <sup>3</sup>J<sub>HH</sub> = 4 Hz, 1 H, H5), 5.62 (d, <sup>4</sup>J<sub>HH</sub> = 4.0 Hz, 2 H, H3), 2.30 (t, <sup>3</sup>J<sub>HH</sub> = 4.0 Hz, 1 H, H1) ppm.



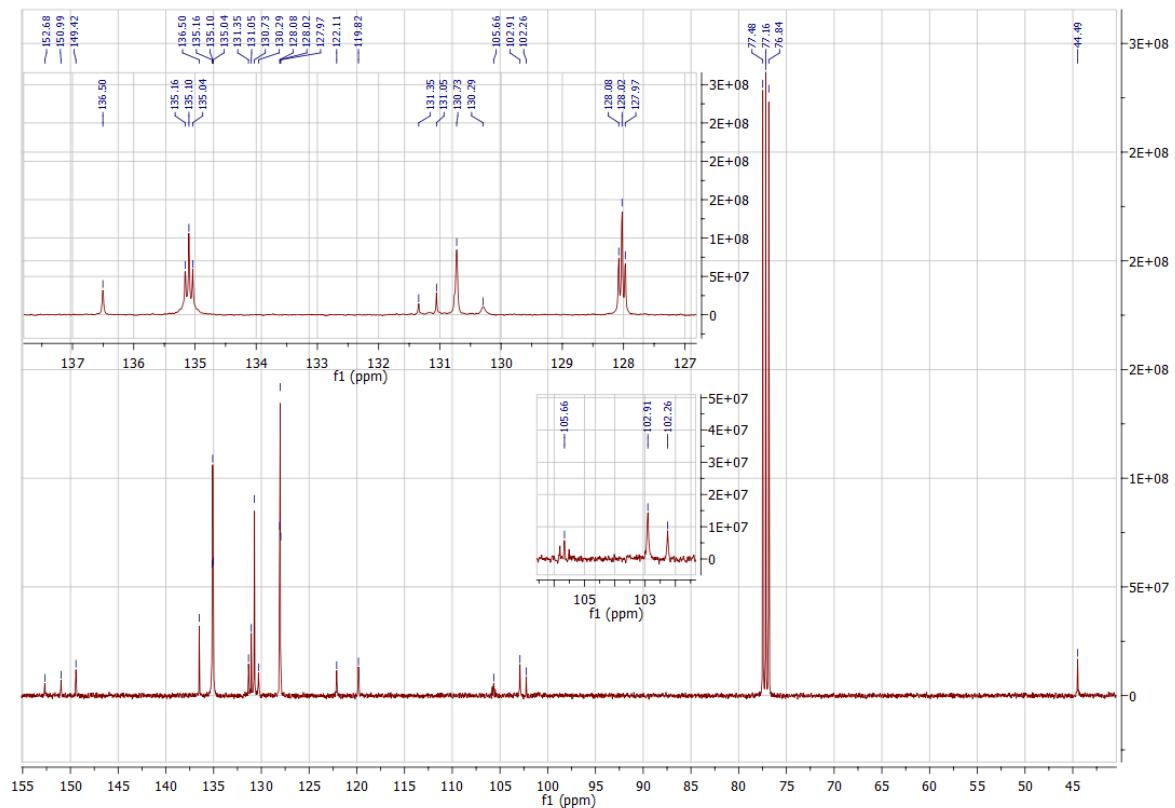
<sup>13</sup>C NMR (100 MHz, 25 °C, CDCl<sub>3</sub>): δ = 152.3, 152.0 (C6, C7), 149.5 (C11), 136.7 (C9), 130.4 (C4), 122.6 (C8), 120.2 (C10), 107.1 (C5), 78.8 (C2), 72.70 (C1), 41.3 (C3) ppm.

## Platinum(II) complex 3

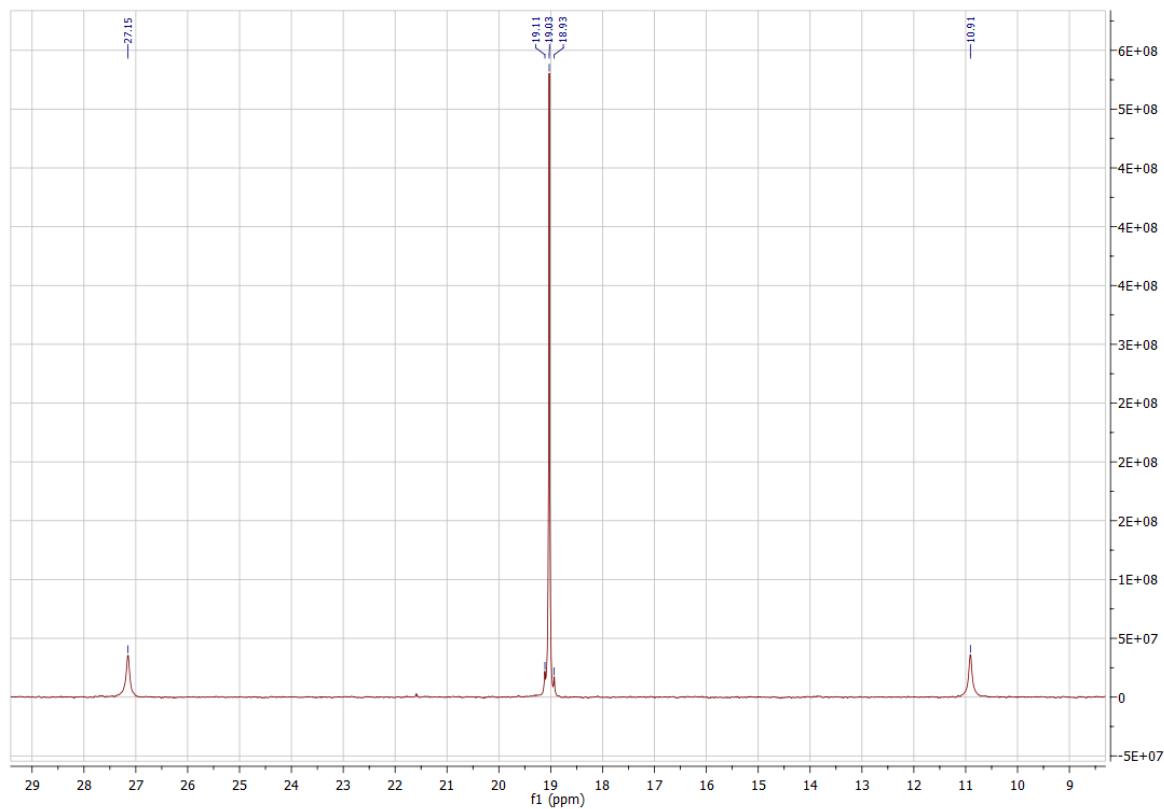
## <sup>1</sup>H NMR spectrum



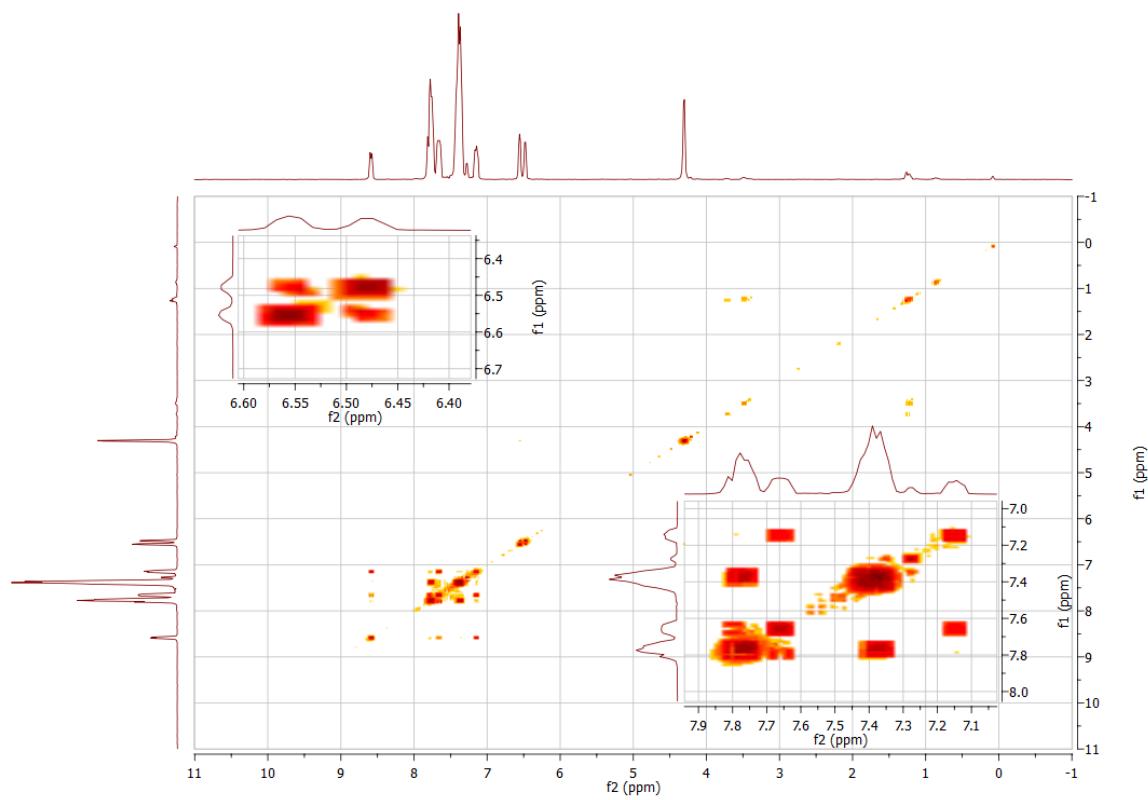
### <sup>13</sup>C NMR spectrum



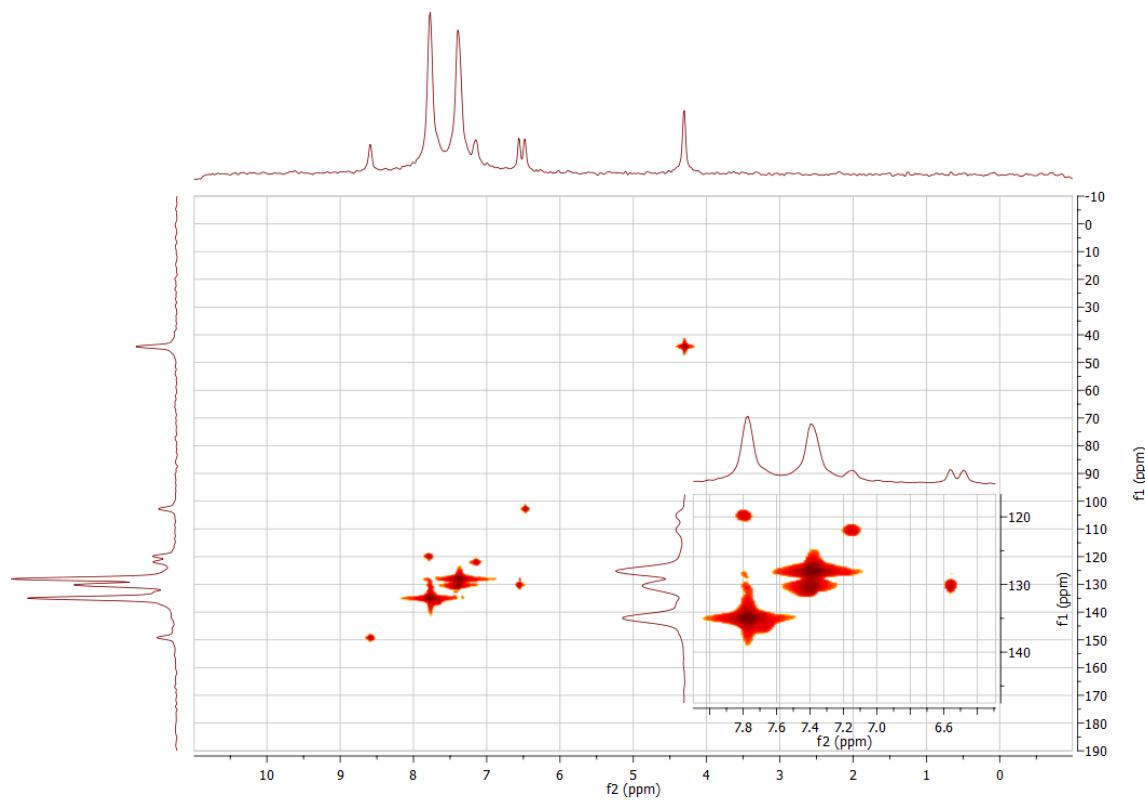
$^{31}\text{P}$  NMR spectrum



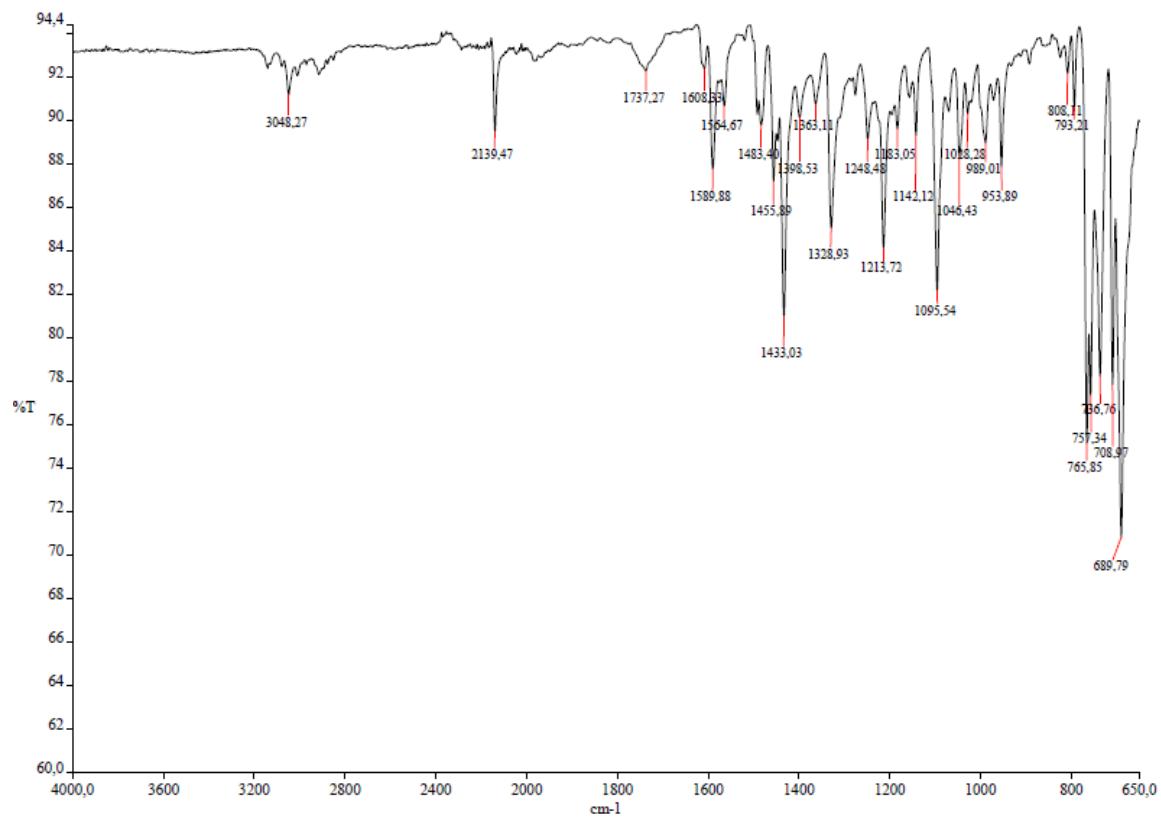
HH-COSY NMR spectrum



### HMQC NMR spectrum

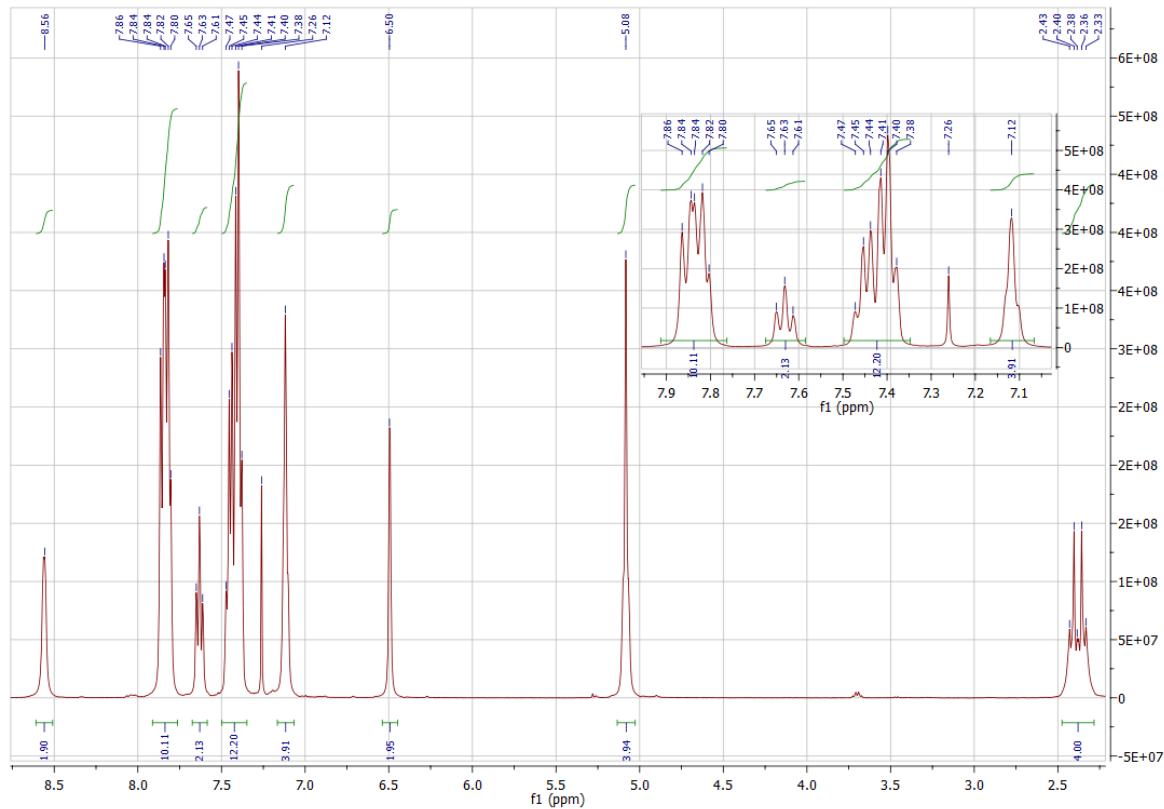


### IR spectrum

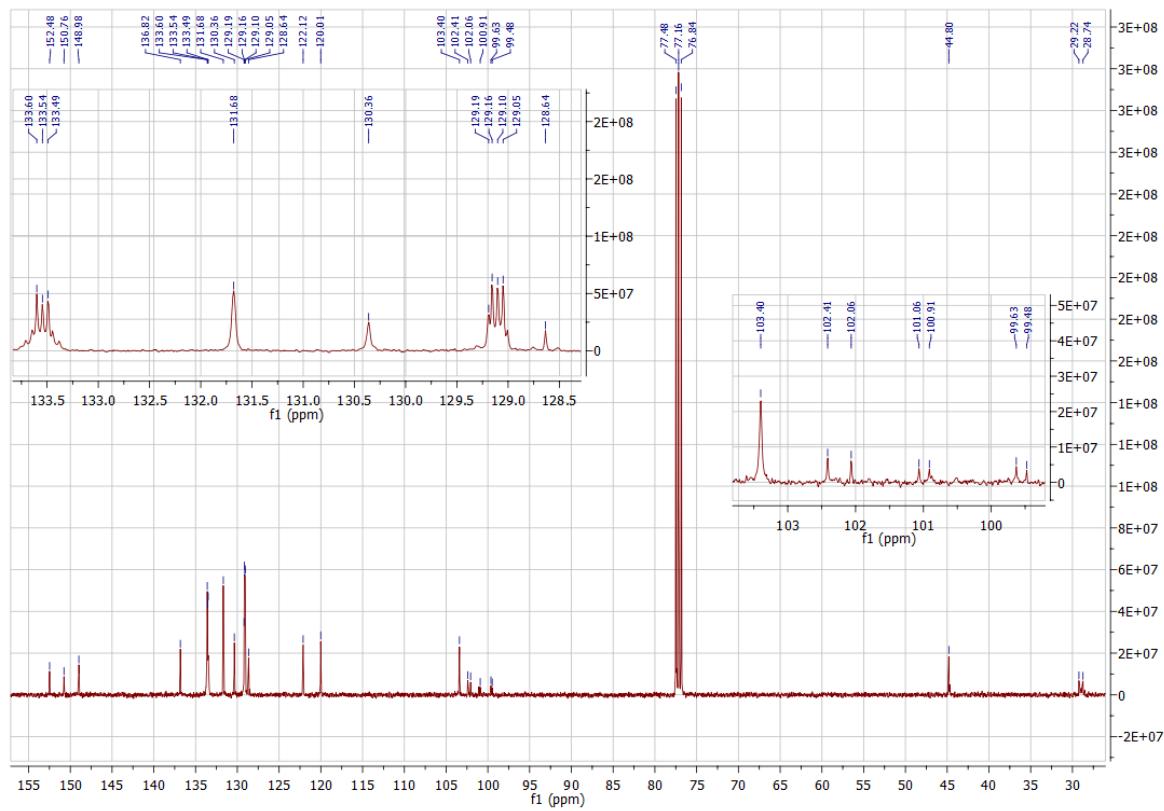


## **Platinum(II) complex 4**

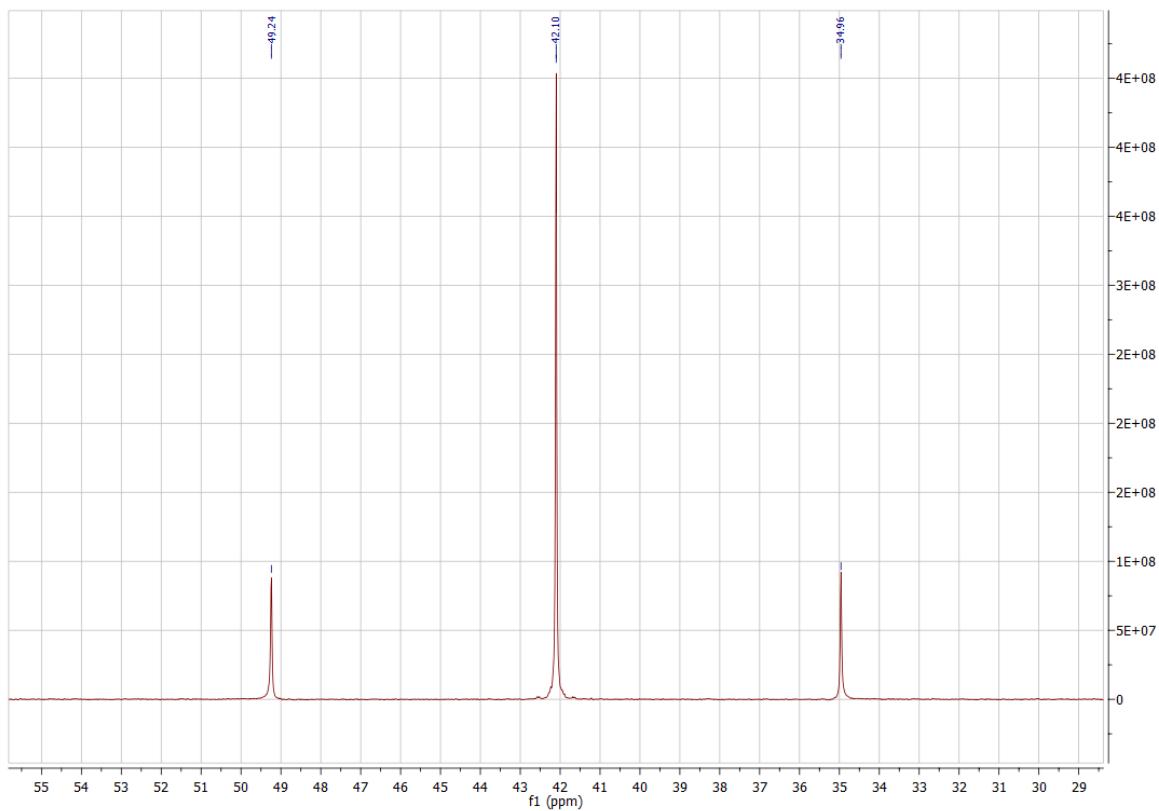
## <sup>1</sup>H NMR spectrum



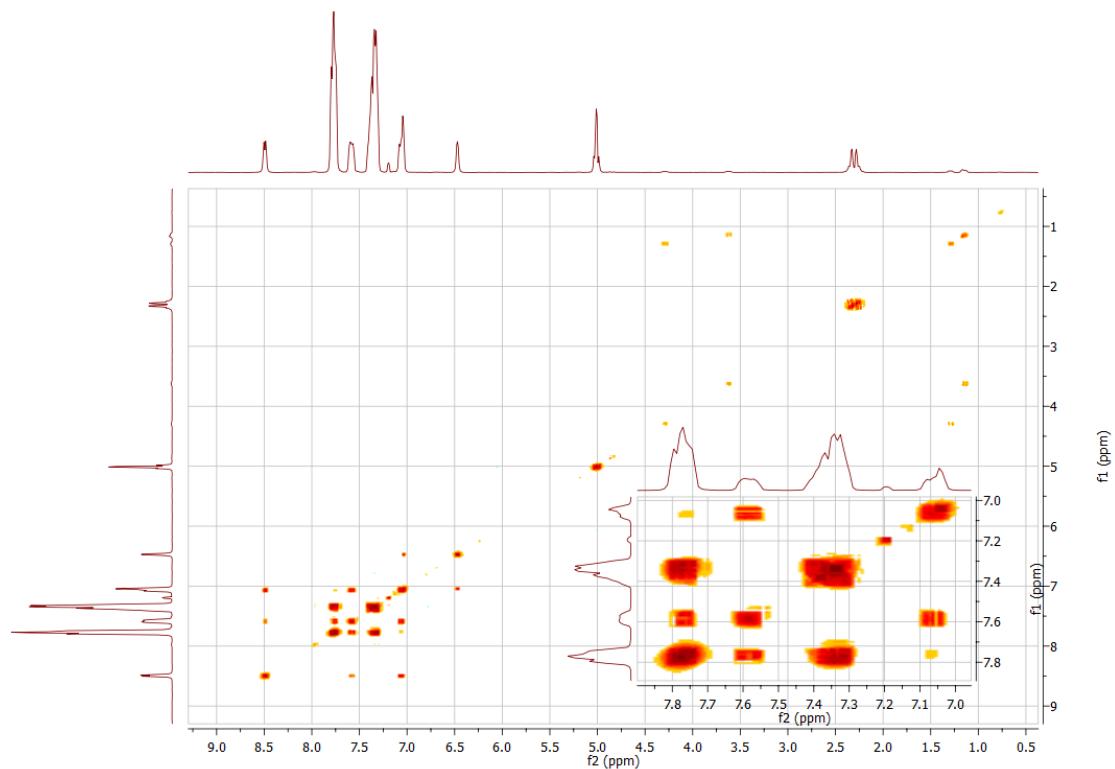
### <sup>13</sup>C NMR spectrum



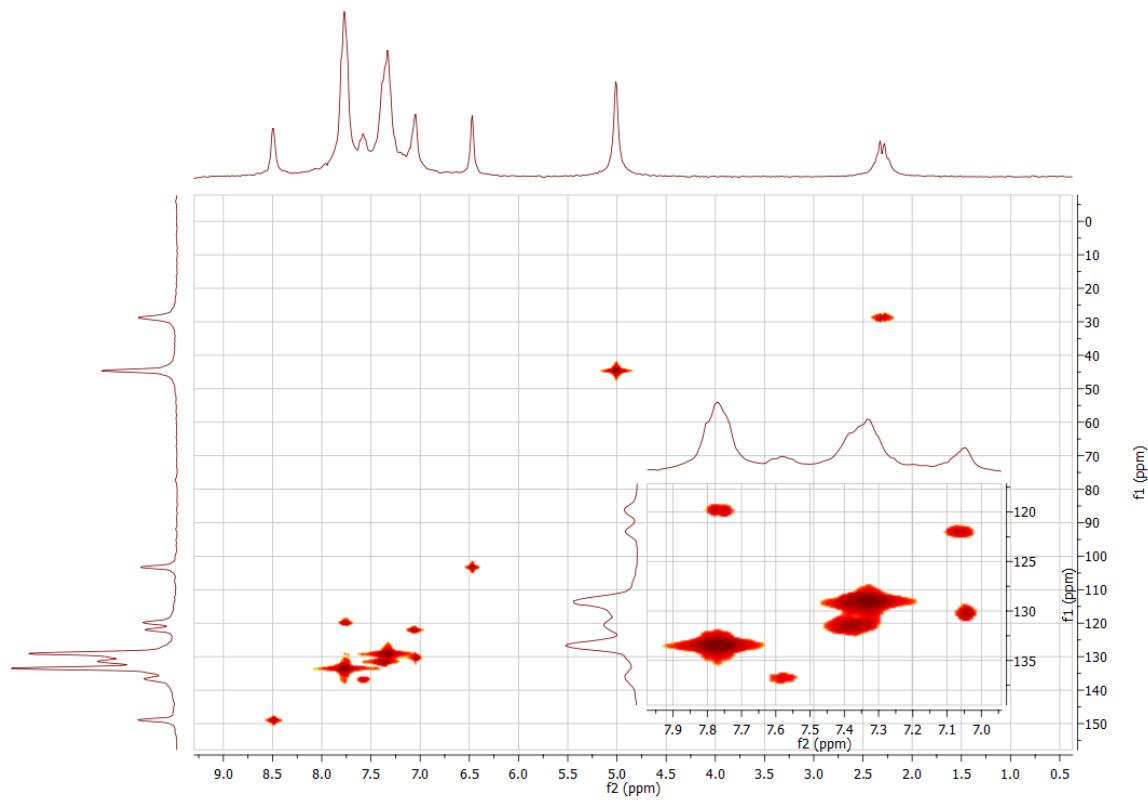
$^{31}\text{P}$  NMR spectrum



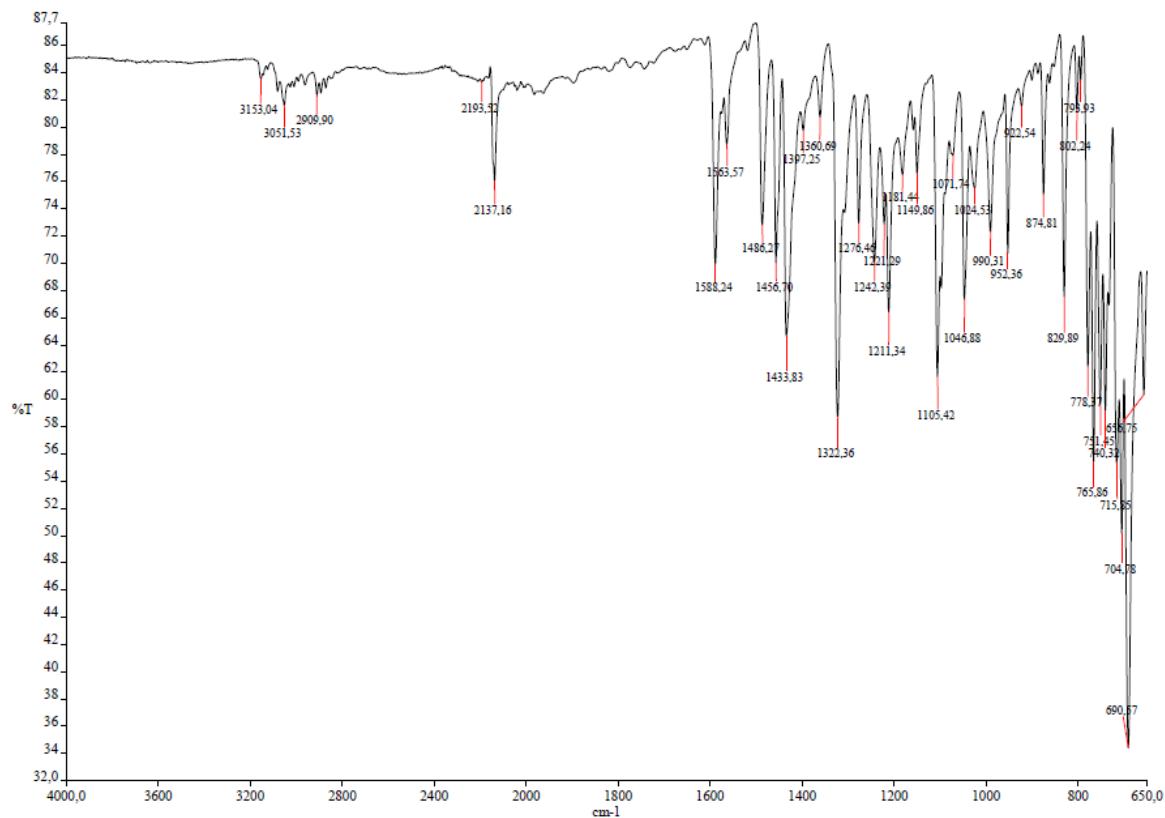
HH-COSY NMR spectrum



### HMQC NMR spectrum

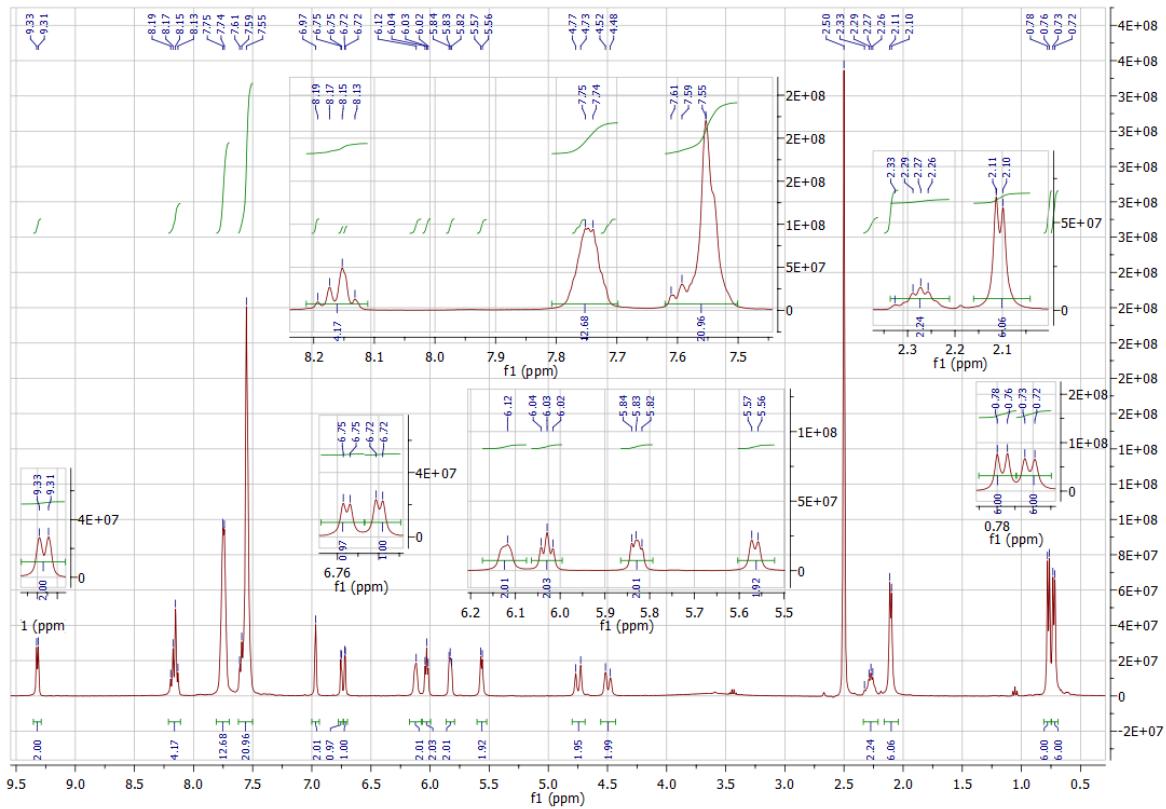


### IR spectrum

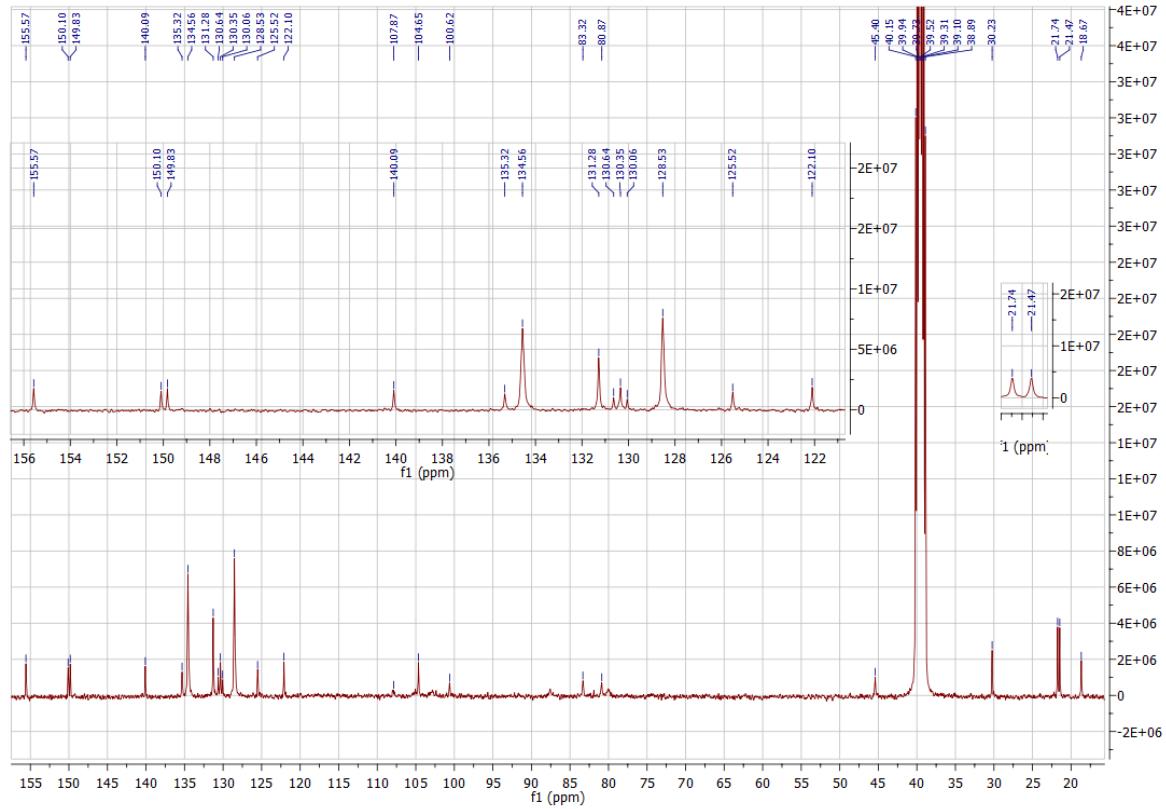


## Ru2Pt complex 5

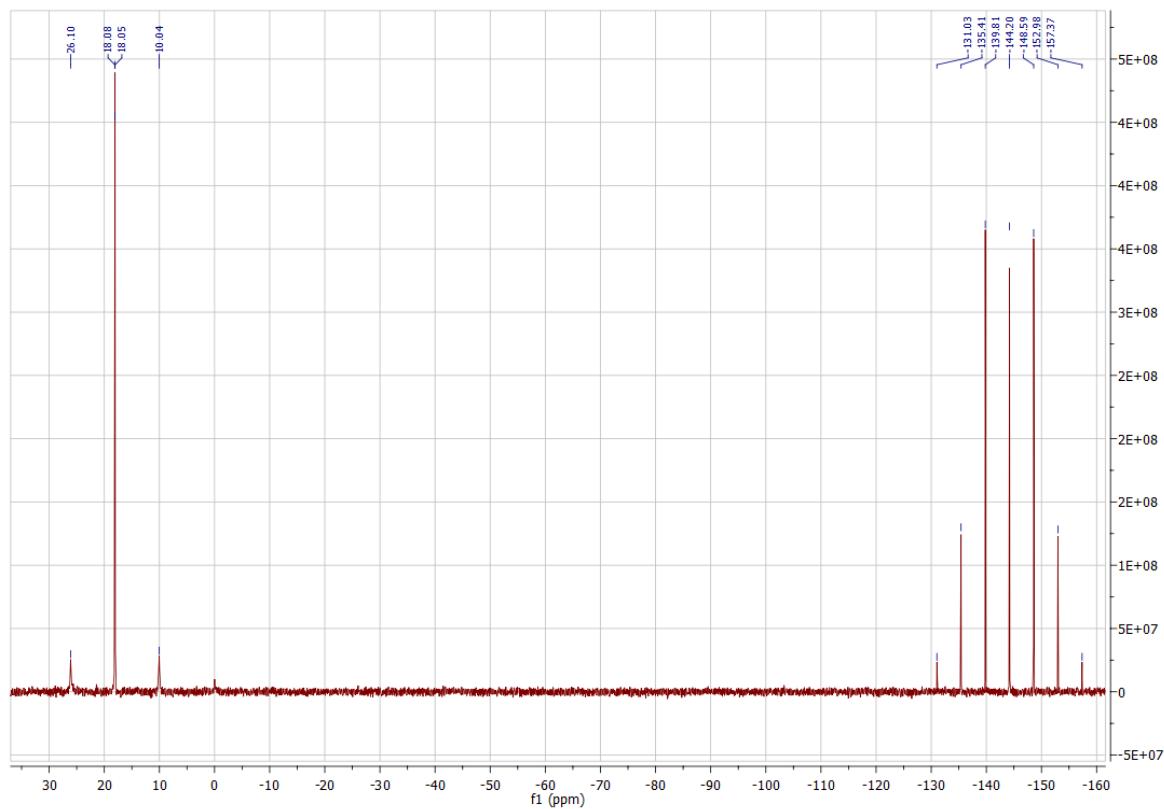
## <sup>1</sup>H NMR spectrum



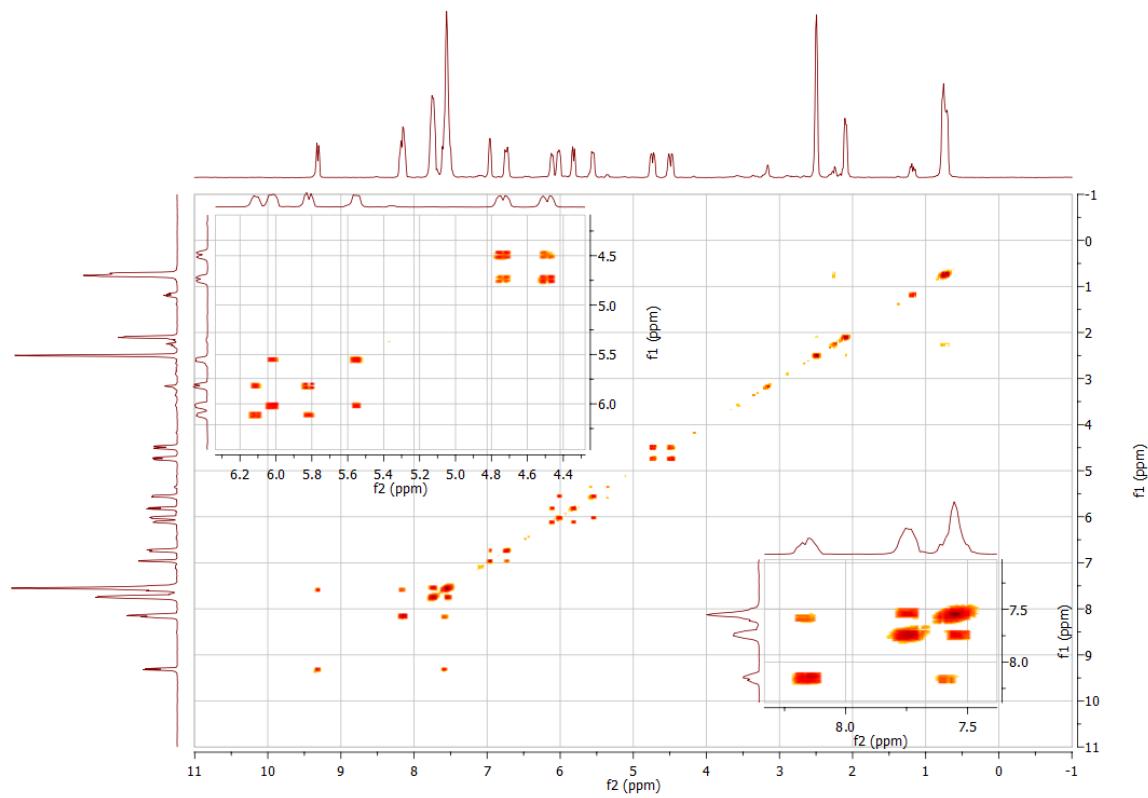
## <sup>13</sup>C NMR spectrum



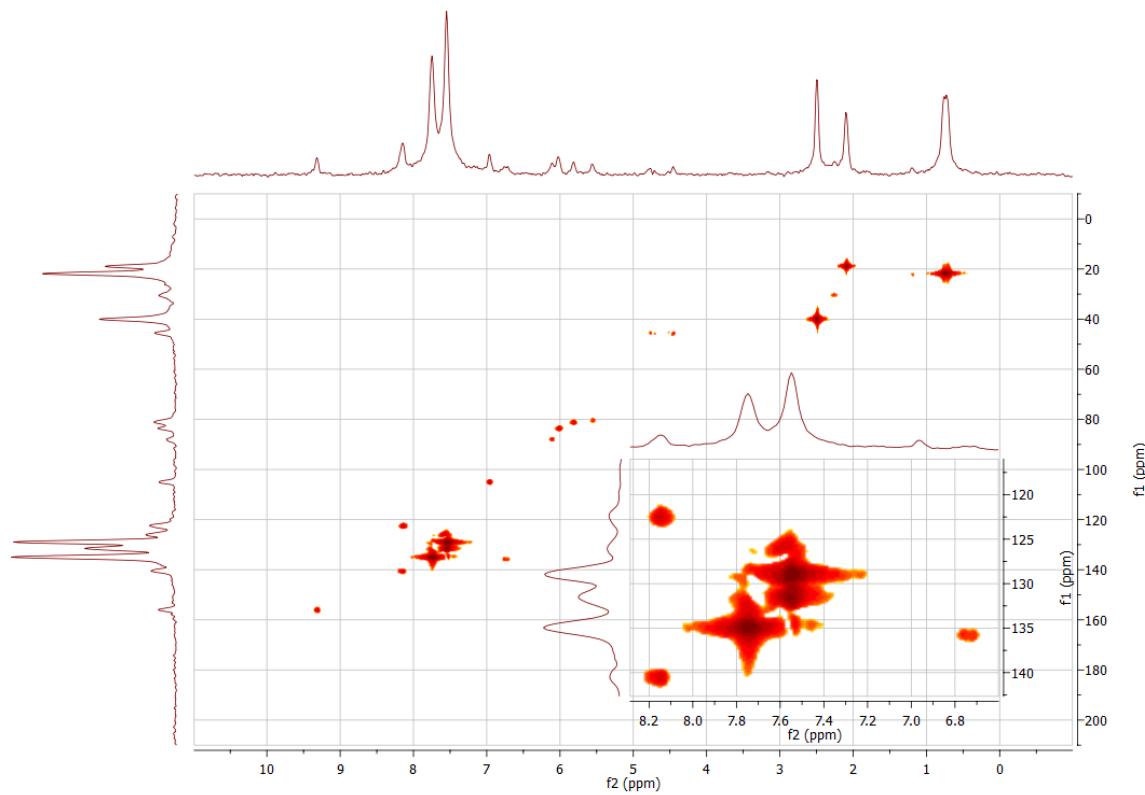
$^{31}\text{P}$  NMR spectrum



HH-COSY NMR spectrum



### HMQC NMR spectrum



### IR spectrum

