

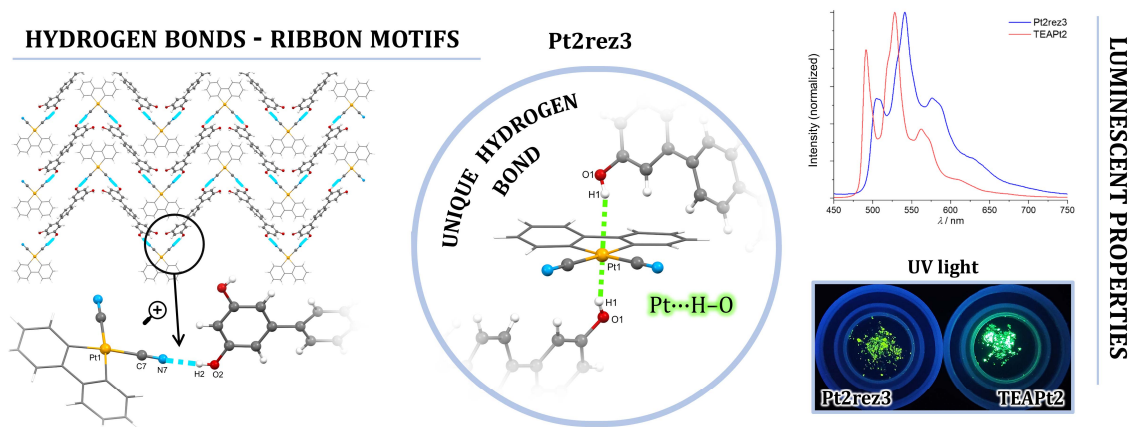
# SUPRAMOLECULAR COCRYSTAL SALT BASED ON HYDROGEN BONDS INVOLVING LUMINESCENT Pt(II) COMPLEX ANION AND ORGANIC POLYRESORCINOL COFORMER

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The photoluminescence of square planar Pt(II) complexes might be tuned by modification of ligands, or through shaping the second coordination sphere, to achieve diverse non-covalent synthons.<sup>[1]</sup> Here, we present the new cocrystal salt, **Pt2rez3**, involving [Pt<sup>II</sup>(bph)(CN)<sub>2</sub>]<sup>2-</sup> (**Pt2**)<sup>[2]</sup> complex anion and oligophenylene polyresorcinol coformer **rez3**<sup>[3]</sup>. This architecture is stabilized by classical hydrogen bonds Pt-CN...H-O<sub>rez3</sub> within 1D ribbons and a unique Pt...H-O<sub>rez3</sub> synthons engaging directly the Pt(II) center. **Pt2rez3** exhibit yellow luminescence in the solid state. The shape and vibronic structure of the emission bands observed both at *T* = 298 K and at *T* = 77 K suggest the phosphorescence originating from the anionic luminophore. For cocrystal salt **Pt2rez3** a relatively large, 13 nm, bathochromic shift in emission patterns can be notified compared with the precursor **TEAPt2**. For cocrystal salt some bathochromic shift in emission patterns can be notified compared with the precursors. A relatively large shift of 13 nm for **Pt2rez3** may be due to a unique <sub>rez3</sub>O-H...Pt...H-O<sub>rez3</sub> arrangement, *d*(Pt...H) = 2.581 Å, where the valence electronic density of Pt complex is interfered by the positive electrostatic potential of proton. To explain the origin of this observed shift, DFT calculations has been launched. Supramolecular combination of the organic coformer with the presented luminophore did not quench their phosphorescence, and high-intensity emission might be still observed and tuned.



**Figure.** Hydrogen bonds in crystal structure of **Pt2rez3** and luminescent properties compared with **TEAPt2** precursor

[1] M. Yoshida and M. Kato, *Coordination Chemistry Reviews*, **2020**, 408, 213194

[2] C. Wakasugi, et. al, *Chem. Eur. J.*, **2020**, 26, 5449–5458

[3] C. Chaumont, et. al, *CrystEngComm*, **2013**, 15, 6845–6862.