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Surprising properties of monomeric and aggregate platinum(II) complexes: delayed fluorescence and near infrared luminescence

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ABSTRACT: Luminescent platinum(II) complexes are generally perceived as thoroughly studied, well understood and ... phosphorescent. In my talk I aim to demonstrate how incorrect this view can be as platinum(II) complexes may not only display phosphorescence, but also prompt and delayed fluorescence. In the first part of my talk I will discuss various cases in which fluorescence and phosphorescence interplay and how this affects the overall photophysics of platinum(II) complexes. Second part of my talk will be focused on a more conventional property of platinum(II) complexes to form aggregates with luminescence in deep red and near infrared. However, while the fact of forming aggregates is well known, not much is understood about their composition. I will dive into the structure of these aggregates by using computational chemistry and photophysics to demonstrate how the number of aggregated units influences the photo- and electroluminescence wavelength.

Short BIO: Dr. Piotr obtained his MEng and BEng degrees in Chemical Technology from Faculty of Chemistry, Silesian University of Technology, Poland in 2015. He was appointed as an Early Stage Researcher in a H2020 Marie Skłodowska-Curie Actions (MSCA) doctoral programme in 2016 and undertook PhD studies at Department of Physics, Durham University, UK which resulted in degree award in 2020. Piotr was invited to continue working at Department of Physics as a PDRA in years 2019-2022. He is currently an Assistant Professor (research) at the Faculty of Chemistry, Silesian University of Technology, Poland. Piotr co-authored more than 40 publications in renowned scientific journals in the area of materials science and organic electronics

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