80th International Scientific Conference of the University of Latvia 2022

Contribution ID: **8** Type: **Oral presentation**

# THIAZOLINE CARBENE-Cu(I)-CARBAZOLIDE COMPLEXES AS LUMINESCENT TADF MATERIALS

*Friday, 11 February 2022 15:00 (20 minutes)*

Highly luminescent two coordinate linear carbene-metal-amide (CMA, metal= Cu, Ag, Au) complexes with short radiative lifetimes have emerged as a highly promising direction towards TADF materials [1,2]. However, structural diversity of CMAs with potential OLED application is still limited to a handful of N-heterocyclic carbene (NHC) structures. In this report we demonstrate luminescent CMAs based on 1,3-thiazoline NHC fragment.

A series of complexes **1-8** composed of thiazoline carbene-Cu(I)-carbazolides was synthesized. In PMMA matrix complexes exhibit sky-blue to bluish green emission (λmax=471-509 nm) with TADF emissive properties and Φpl reaching 0.86 for compound **8**. Radiative rates in the range of 2.8-7.2×10^5 s^-1 were attained. An increase of the of emissive rates was observed with the introduction of sterically demanding substituents at both the carbazole (1,8-dimethly- groups, compounds **2**, **4**, **6** and **8**) and thiazoline (4-phenyl- group, compounds **5-8**). The interactions of the bulky groups induces sterical locking, which increases coplanarity of carbazolide and thiazoline ligands. Emitter **7** was successfully integrated in vacuum-deposited OLEDs with external quantum efficiency reaching 16.5 %.

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**Session Classification:** Oral Presentations

**Track Classification:** Organic Chemistry: Oral Presentation