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|  | **ХАРКІВСЬКИЙ ХІМІЧНИЙ СЕМІНАР**  **KHARKIV CHEMICAL SEMINAR** | **IMG_256** |
| ***НТК «Інститут монокристалів» НАН України***  ***НДВ хімії функціональних матеріалів***  ***State Scientific Institution***  ***«Institute for Single Crystals» NAS of Ukraine***  ***Division of Functional Materials Chemistry*** |

Lecturer: **Prof. Radek Cibulka** *(University of Chemistry and Technology, Czech Republic)*

Topic: **Deazaflavin-based strong reducing agents produced by light**

Date: **December 8th**

Time: **16-00 (Kyiv)**

Zoom link:

https://us02web.zoom.us/j/4590042894?pwd=dEZzSjlMbEdkQnhNODZYYjJoekVPUT09  
Meeting ID: 459 004 2894

Passcode: Ch24022022

Chairman: **Prof. Valentyn Chebanov**

Lecture abstract:

Within the last few years, the interest increased in the development of strong reducing organic agents with reducing power comparable to sodium and lithium and with a significantly less hazard potential. Such reducing agents could be used as alternatives in various chemical transformations where alkaline metals still play a key role. The combination of light with a suitable dye is one promising way to achieve this goal. Nevertheless, the number of reducing systems as strong as alkaline metals are still limited and not all of the systems work catalytically.

In the presentation, development of catalytic reductive systems based on flavin derivatives working on principles of photoredox catalysis will be presented. Excited radical anions and neutral radicals derived from deazaflavins dFl and analogous deazaalloxazines were shown to belong among the strongest reducing particles characterized by excited state oxidation potential achieving values below -3.3 V vs SCE, value comparable to lithium (Eox = -3.29 V vs SCE). Practical applications including e.g. phenyl radical generation from halobenzenes, photoreductive triflyl/tosyl group removal from sulphonamides or amine group dealkylation will be discussed. Strongly reducing properties of flavin derivatives developed within last three years clearly show that flavins belong among the most versatile photoredox catalysts covering also reductions, additionally to previously described oxidations.

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