

## **Crystal chemistry of selected uranyl arsenates and phosphates of divalent transition metals and magnesium**

### **SUMMARY**

Uranium is the important constituent of the crystal structures for more than 200 mineral phases occurring in nature. Study of the uranyl phases, where uranium is present in hexavalent form, is significant both for the general knowledge of uranium deposits genesis and for the environmental problems – connected with usage of the uranium as the energy source.

The aim of this work is to collect new data on crystal chemistry of selected natural hydrated uranyl arsenates and phosphates of divalent transition metals (including Co, Ni and Zn) and magnesium. These phases occur on most uranium deposit worldwide, mostly as minor or rare minerals.

Current research proved both similarities between studied natural minerals and their synthetic analogues, recently published in literature.

New mineral specie, uranyl arsenate octahydrate of nickel – metarauchite from Jáchymov (CZ) with ideal composition of  $\text{Ni}(\text{UO}_2)_2(\text{AsO}_4)_2 \cdot 8 \text{H}_2\text{O}$ , was described and approved by IMA. Existence of decahydrates was documented. Substitution trends were established among examined minerals (major anionic substitution trend  $\text{AsP}_{-1}$  and many in cationic site). In the case of metakirchheimerite (Co member) and metanováčekite (Mg member) new valuable crystallographic and chemical data were collected.