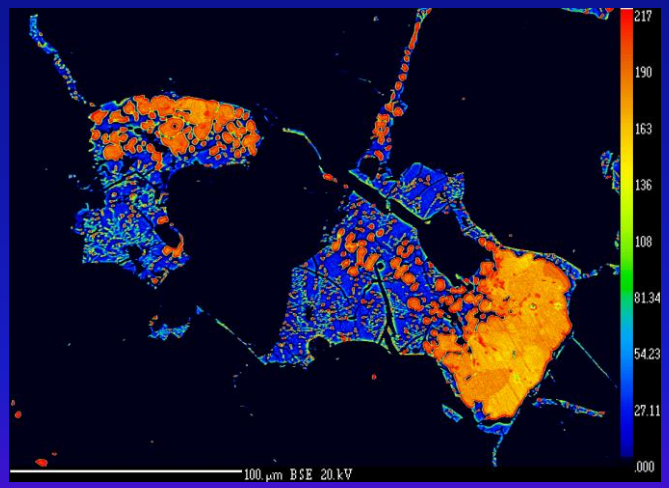
Výber z tvorby

Selection of works

Daniel Ozdín



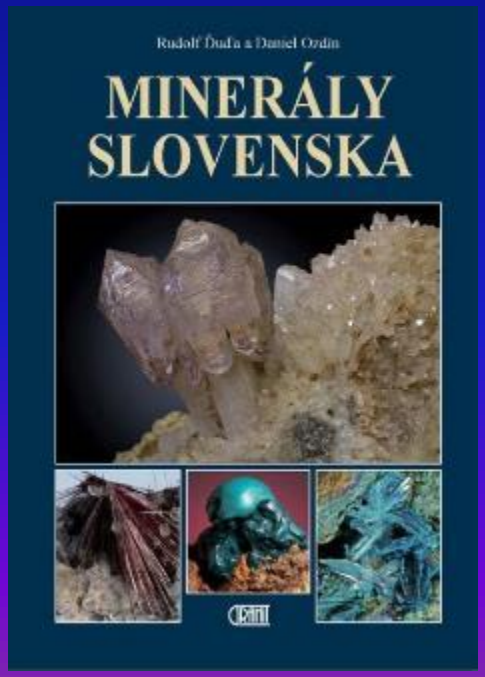
Univerzita Komenského v Bratislave, Prírodovedecká fakulta,
Katedra mineralógie, petrológie a ložiskovej geológie

MAIN RESEARCH TOPICS

- Mineralogical, crystallochemichal and genetic study of hydrothermal mineralization in Slovakia
- Meteoritics
- Mineral archeology
- Environmental mineralogy
- Museology
- Legislation
- Popularization of science

Mineralogical, crystallochemichal and genetic study of hydrothermal mineralization in Slovakia

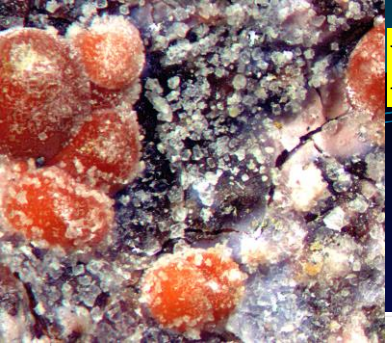
- Hydrothermal mineralizations
- Siderite and sulphidic stage
- Sulphosalts
- Tellurides
- Tourmalines
- Alpine type veins
- SiO_2 mineralization

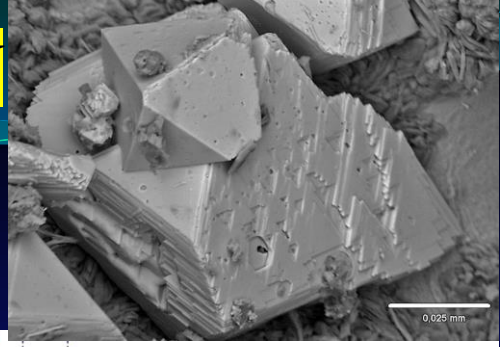


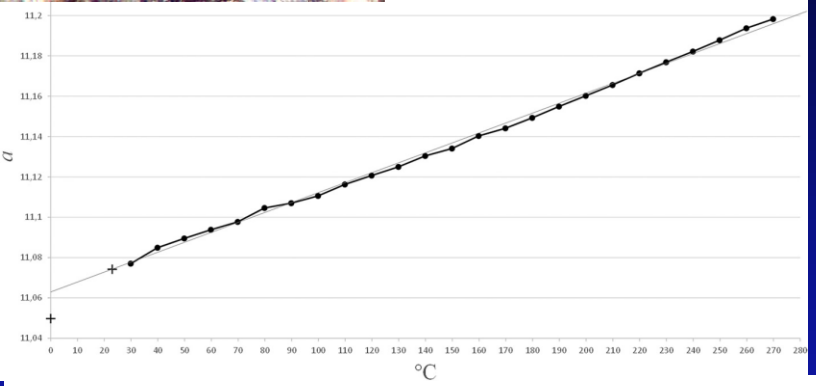
EXAMPLES OF SCIENTIFIC STUDY

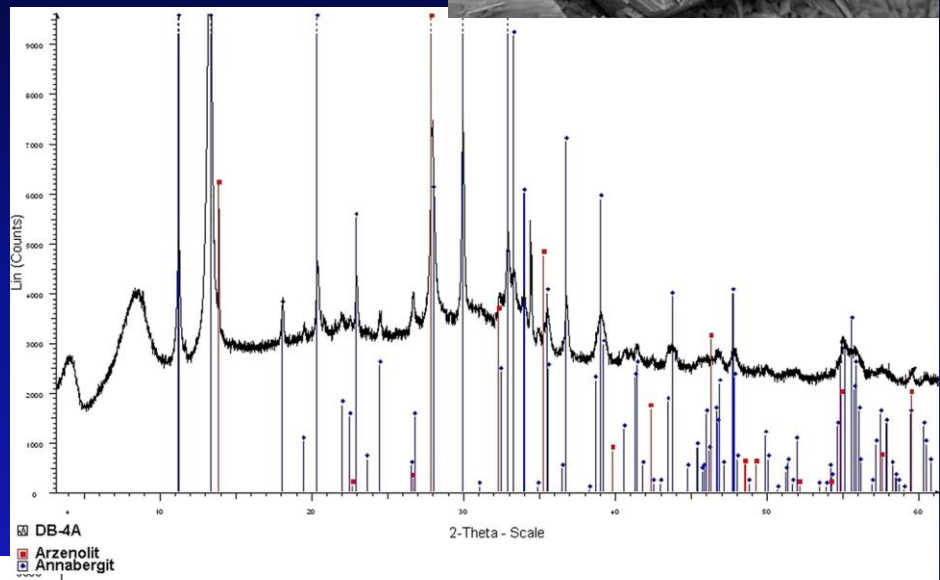
Arsenolite (Dobšiná)

Crystal chemistry

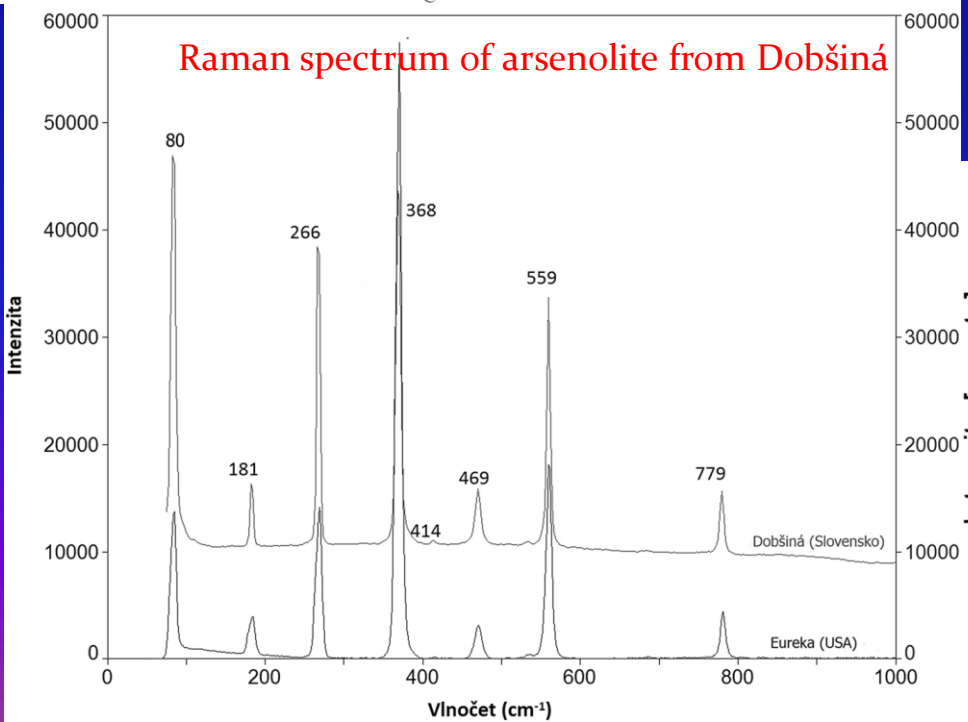




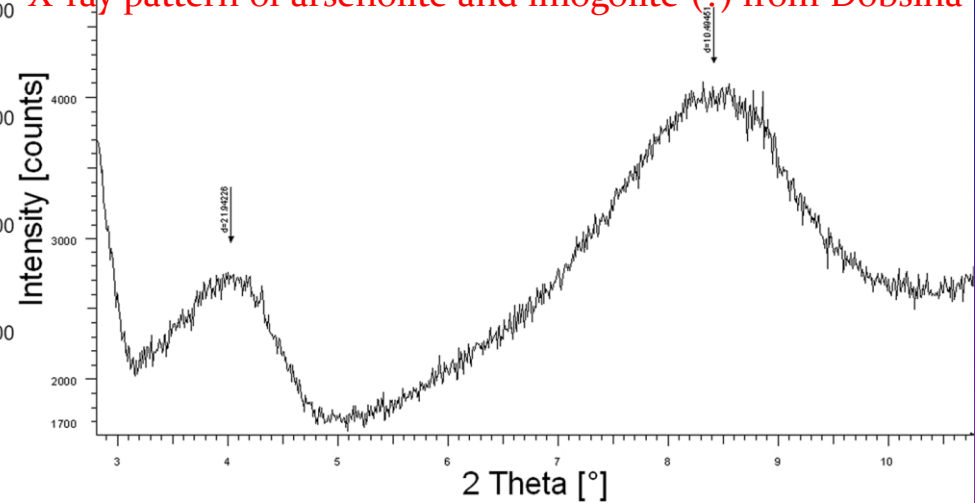




Raman spectrum of arsenolite from Dobšiná

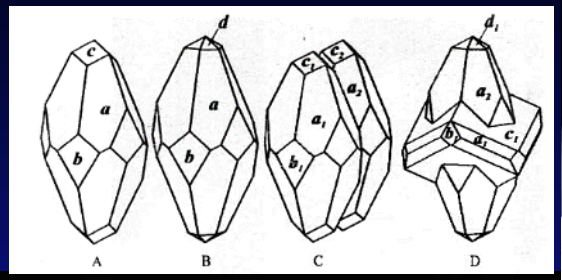


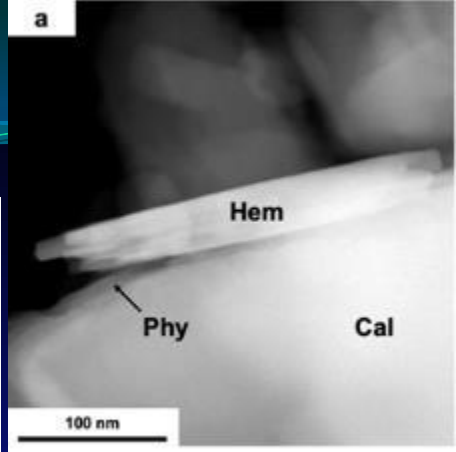
X-ray pattern of arsenolite and imogolite (?) from Dobšiná

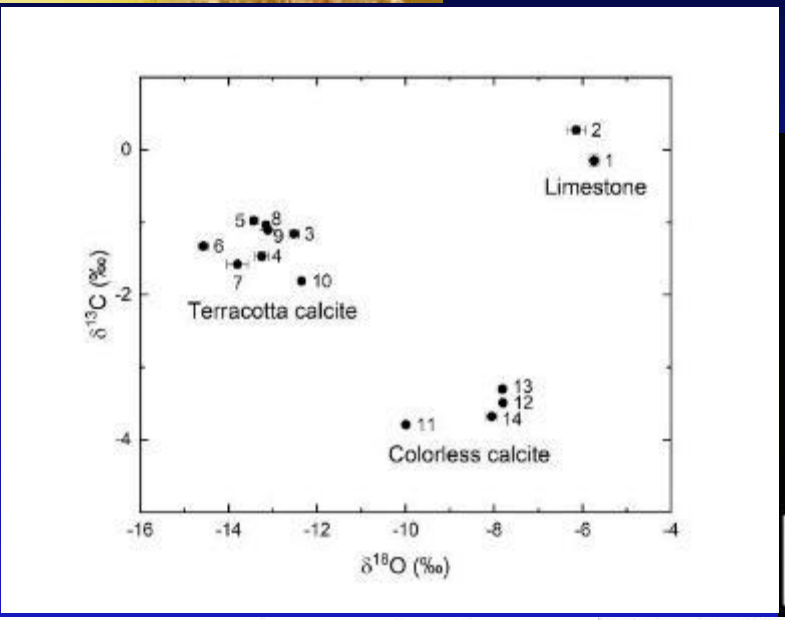


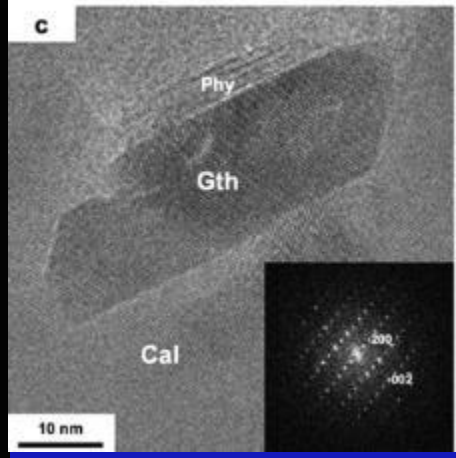
Calcite (Gemerská Ves)

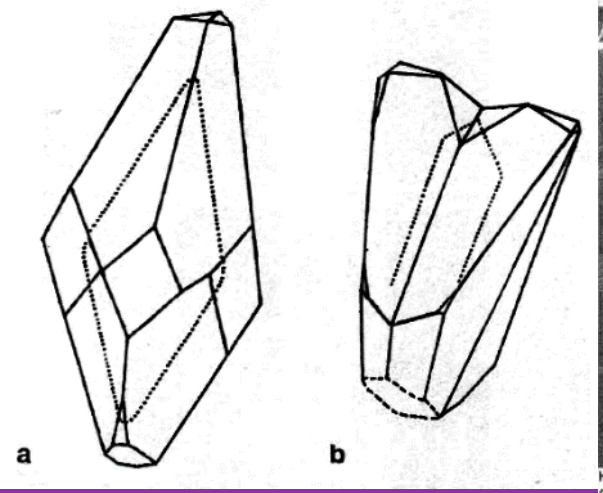
Mineralogical study

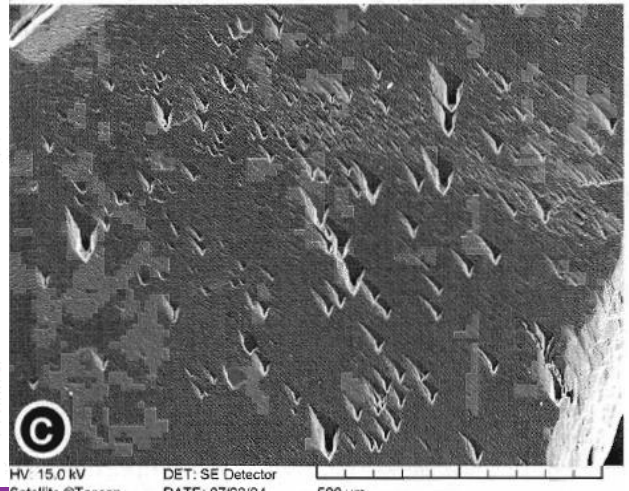


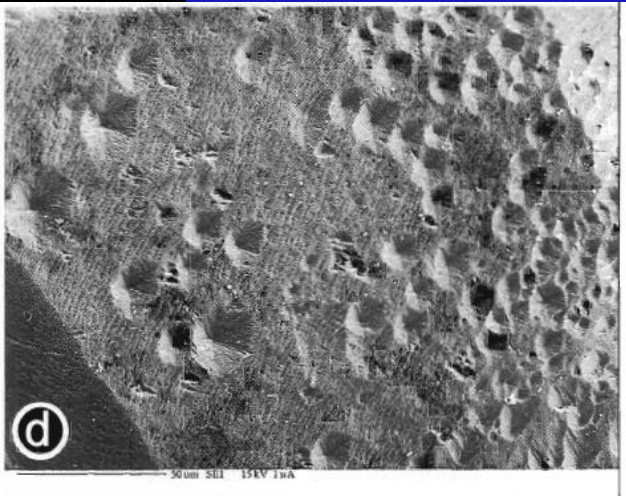




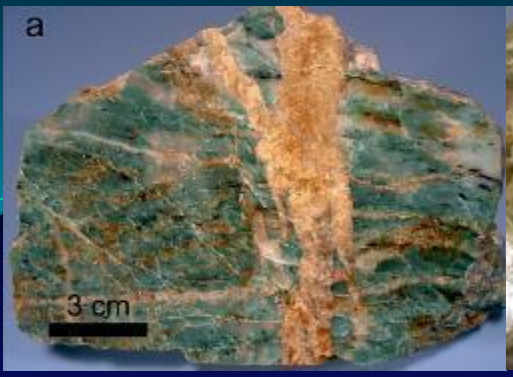


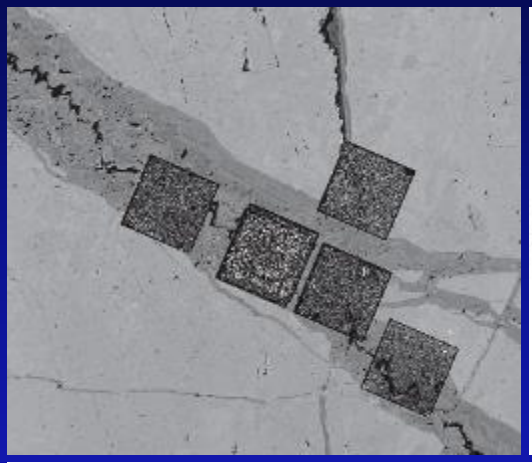


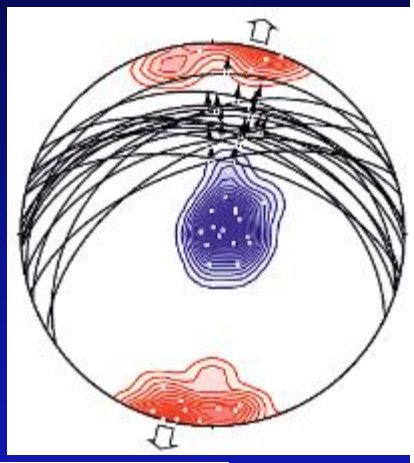


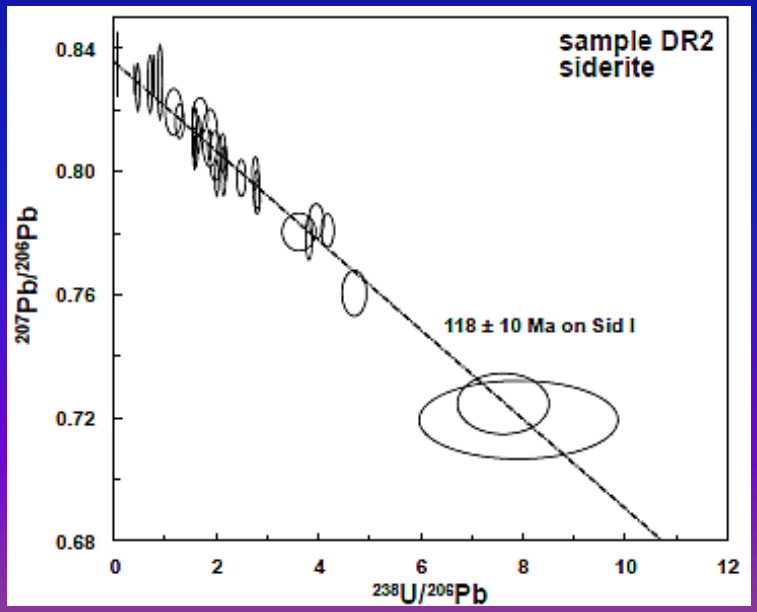


Siderite mineralization
Genetical study





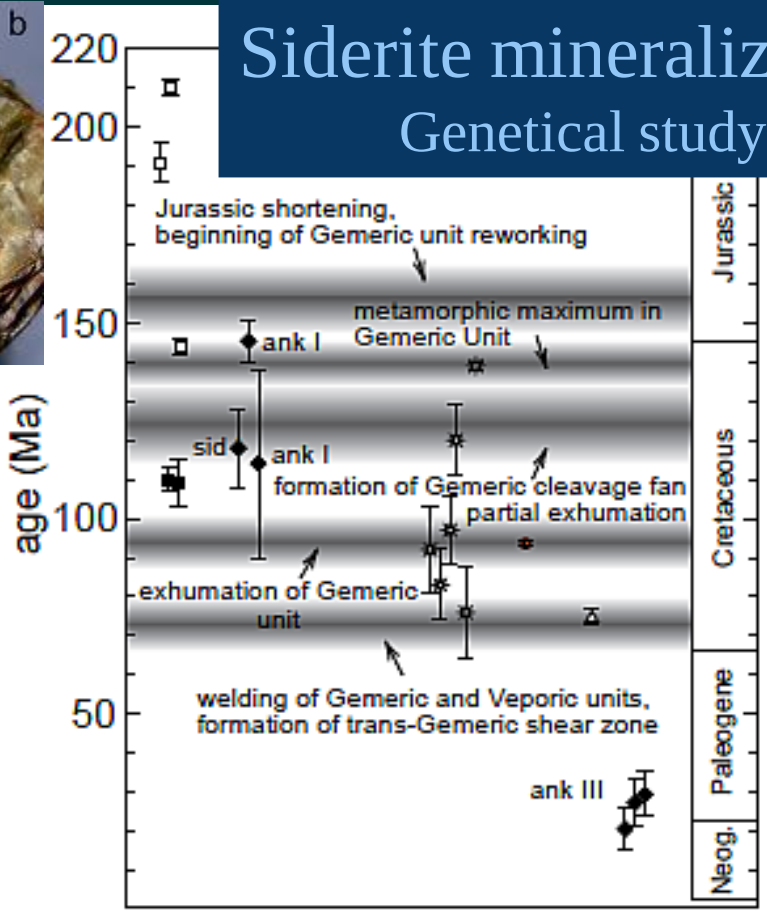




U/Pb carbonates

Re/Os gersdorffite

K/Ar muscovite var. fuchsite

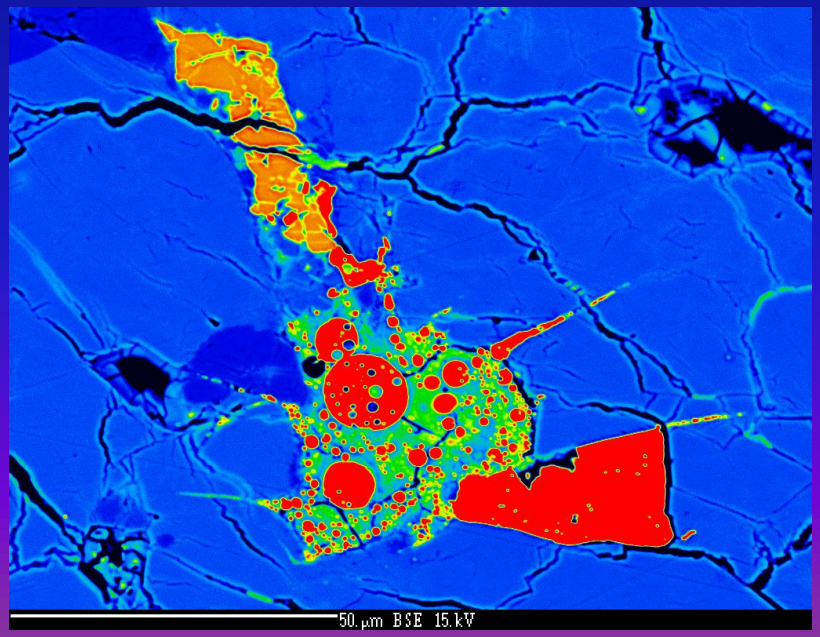


- ◆ U/Pb on carbonates, this work, *related to the siderite sub-stage and remobilization phase*
- ■ K/Ar on fuchsite, this work, *related to the fuchsite stage*
- ● Re/Os on gersdorffite, this work, *related to the Ni–Co sub-stage*
- □ K/Ar on fuchsite, Dobšiná, Rudňany (Cambel et al. 1980, 1990), *related to the fuchsite stage*
- ✱ U/Th/Pb on monazite, Čučma, Rožňava (Hurai et al. 2006, 2015), Ľubietová, Jedľové Kostolany (Ozdín 2008, 2015, Ozdín et al. 2016), *related to the quartz-tourmaline stage*
- △ Ar/Ar on muscovite, Jedľové Kostolany (Ozdín 2010) *perhaps related to the Cu–Sb sub-stage*

Meteoritics

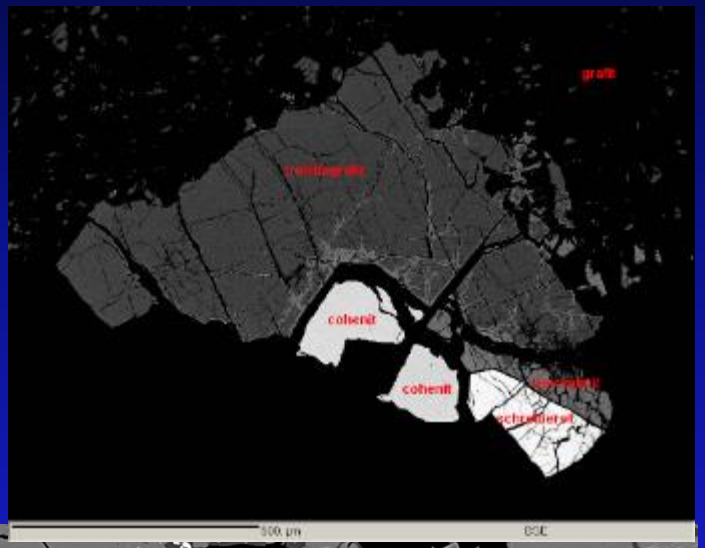
- Primary charakteristic all Slovak meteorites
- Description of new meteorites

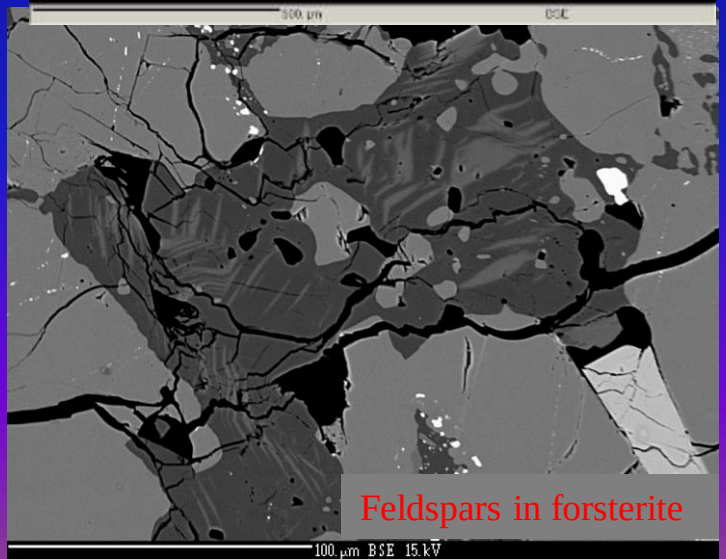
Copper, perryite, nickelphophide, daubréelite, ringwoodite (?), tetrataenite, horomanite, fluorapatite... Sugakiite – first find in meteorites



Magura
Lenartov
Divina
Veľké Borové
Rumanová
Košice
Smolenice
Uhrovec
Diviaky nad Nitricou

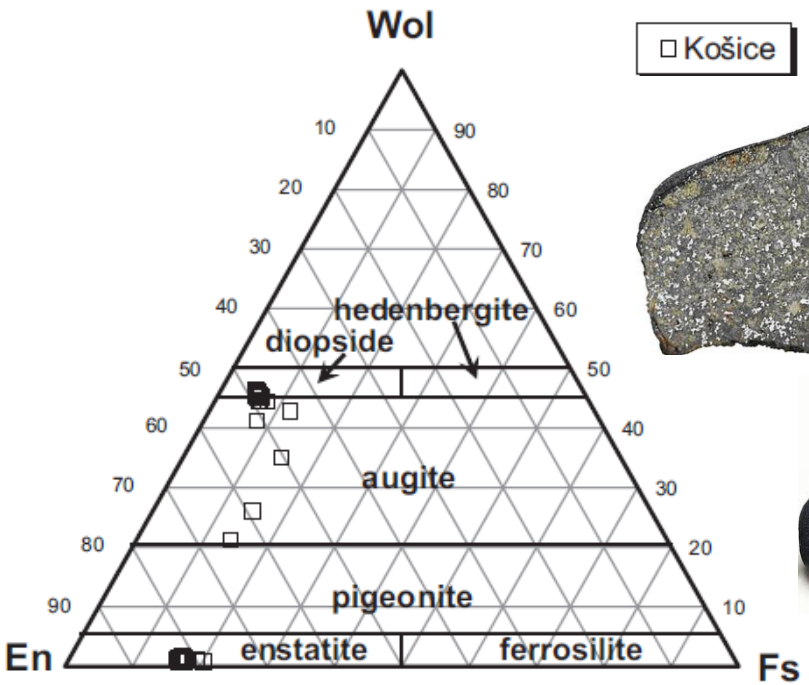
NWA-XX

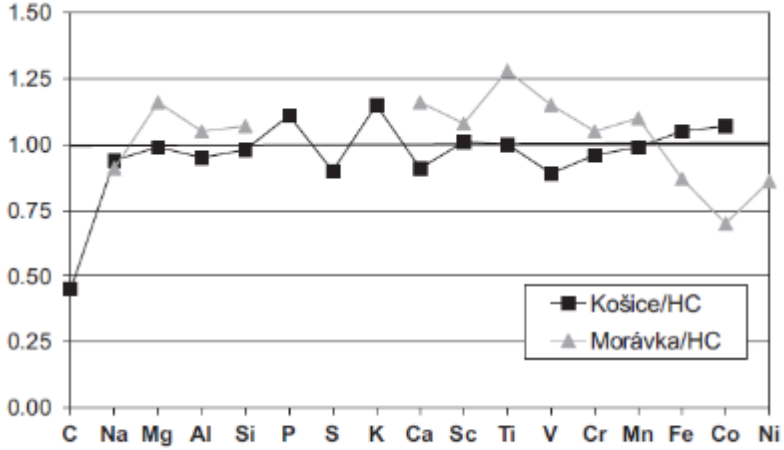


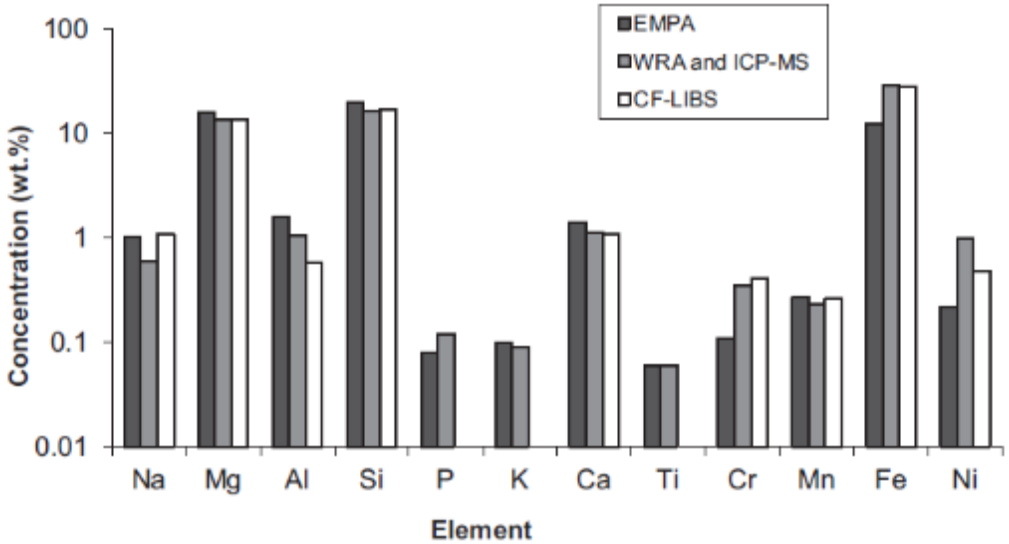


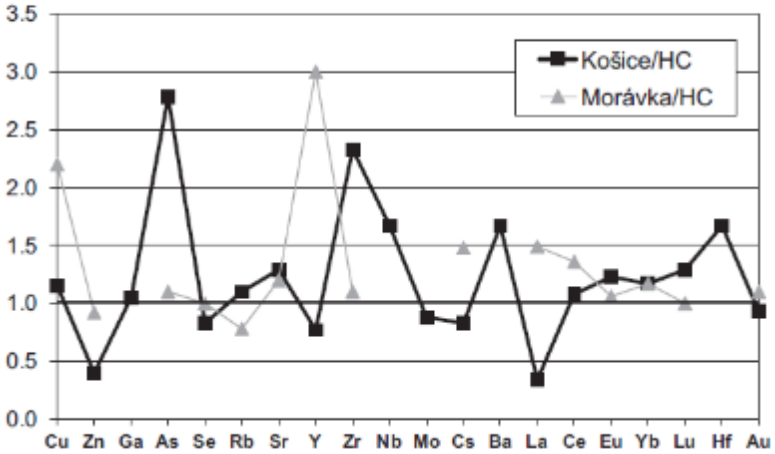
Feldspars in forsterite

Košice (chondrite H5)

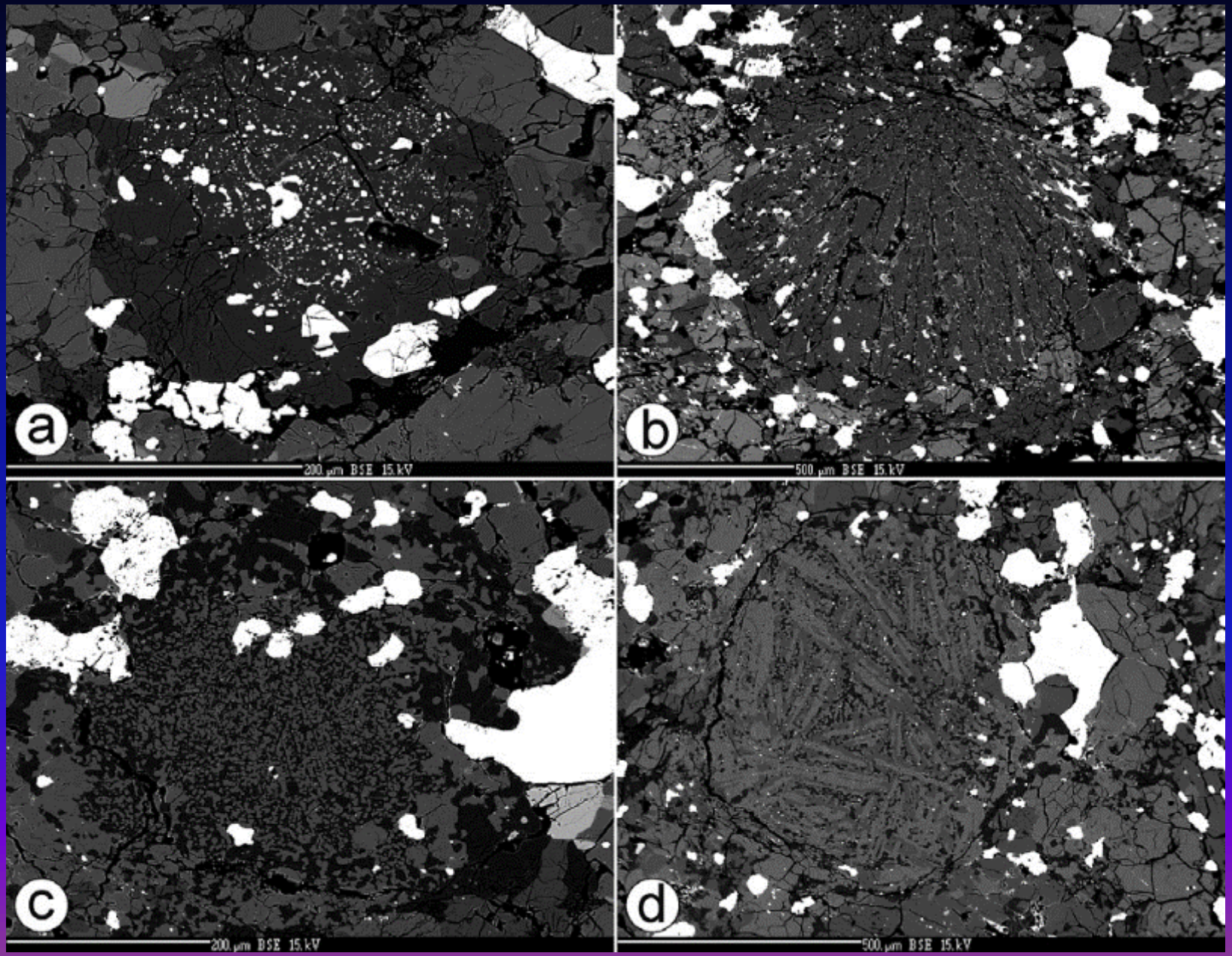






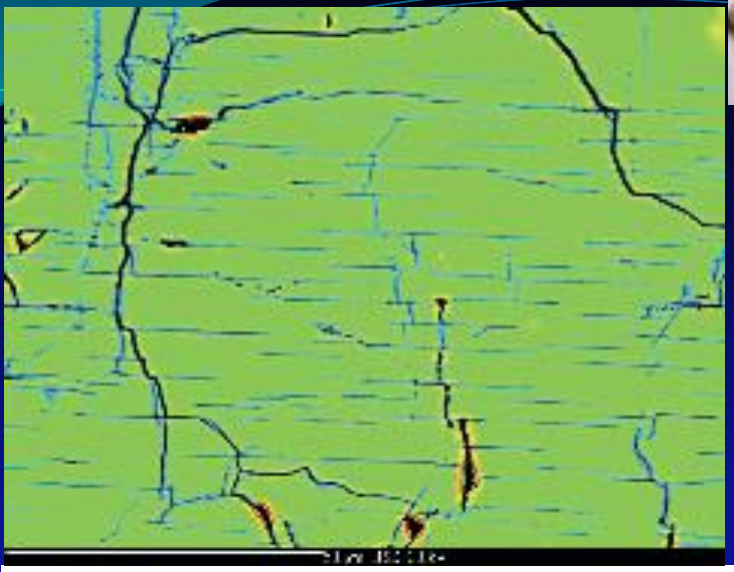


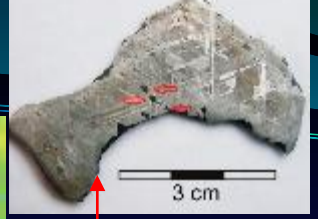
Study of chondrules in chondrites

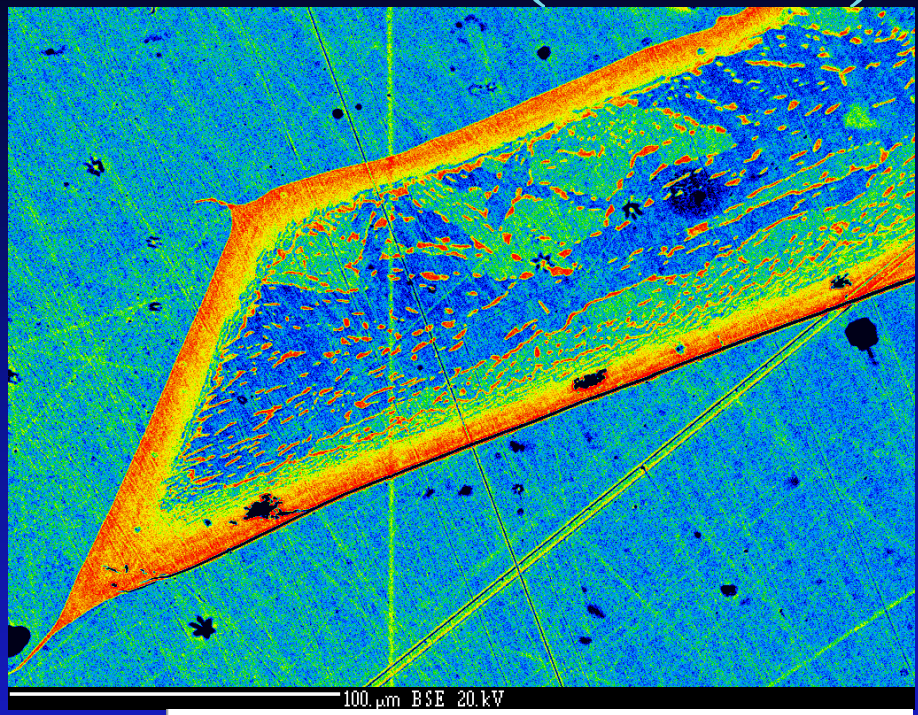


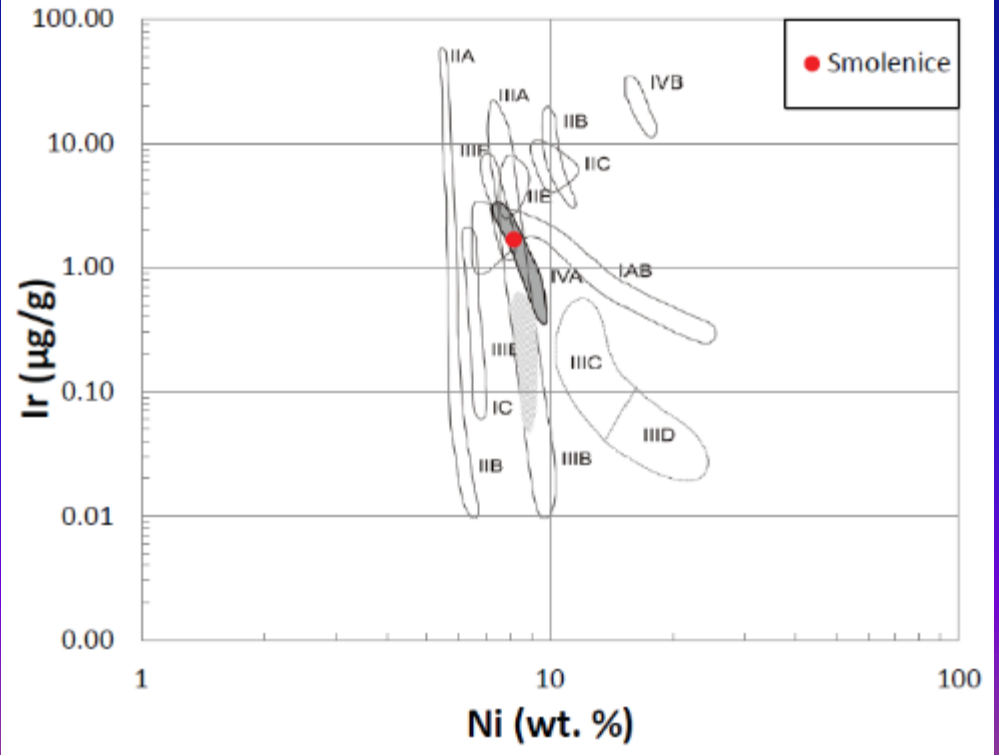
Smolenice (iron IVA)

Widmanstätten pattern in Smolenice.
Three arrows show nodules of troilite.

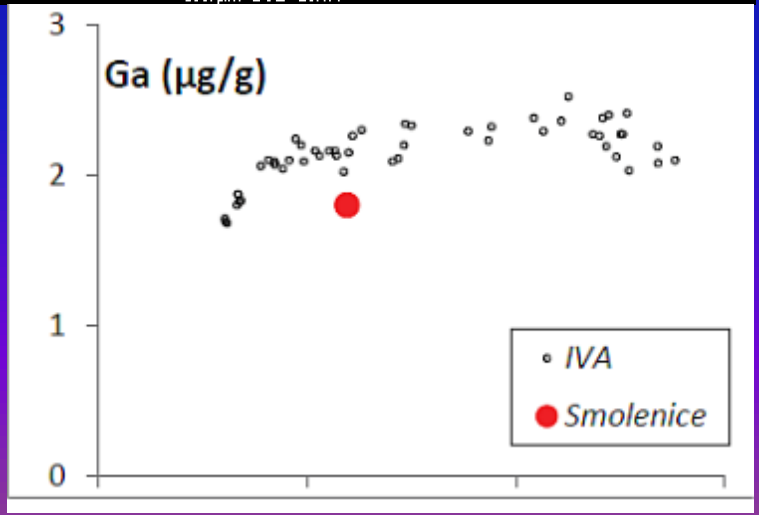








Terrestrial age of the Smolenice meteorite is 11±2 kyr (on the base of radionuclides ^{14}C and ^{26}Al).



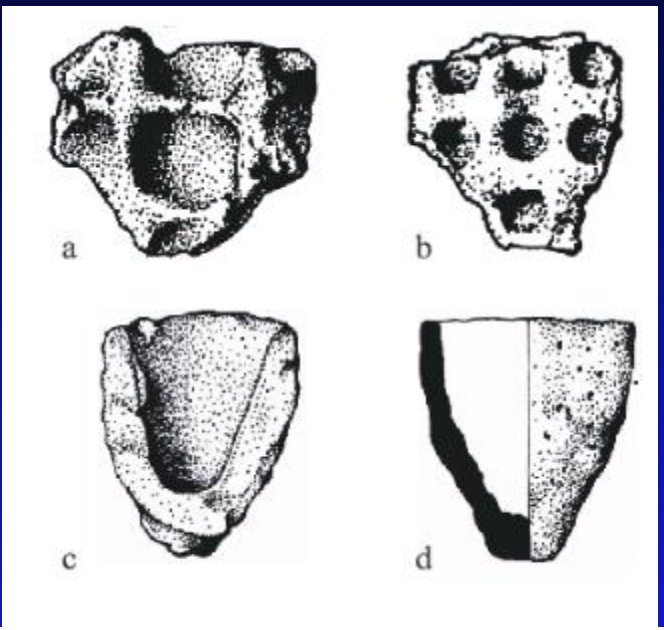
PRESENTATION OF RESULTS AND POPULARIZATION OF SCIENCE

Chondrite Divina

commemorative postmark

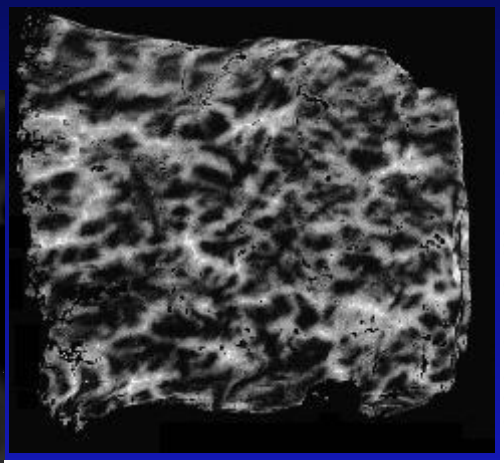
Monument to the Meteorite Fall on the central square in the village of Divina and its detail with a copy of the meteorite

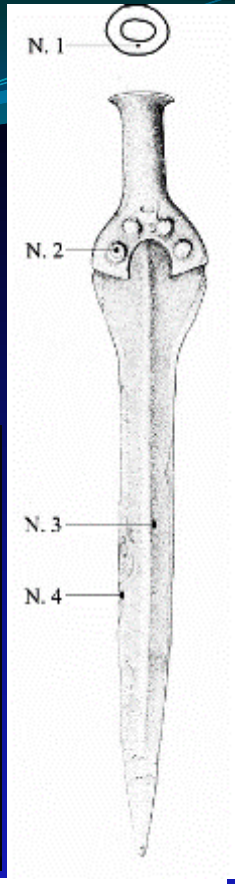
Mineral archeology

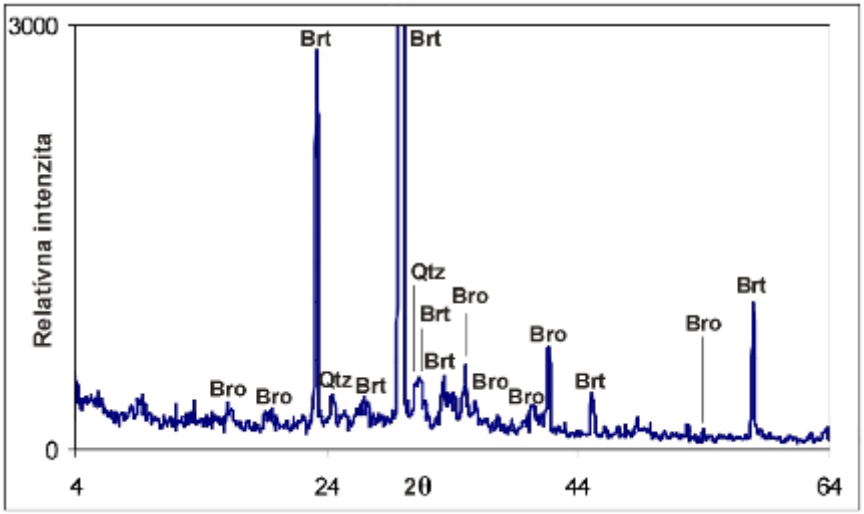


Bratislava – Latenian artefacts

Topľa – Apa type sword

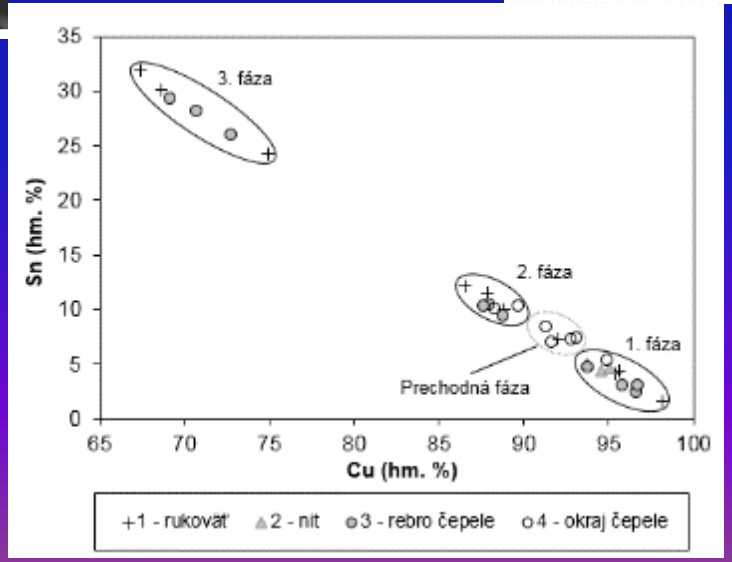






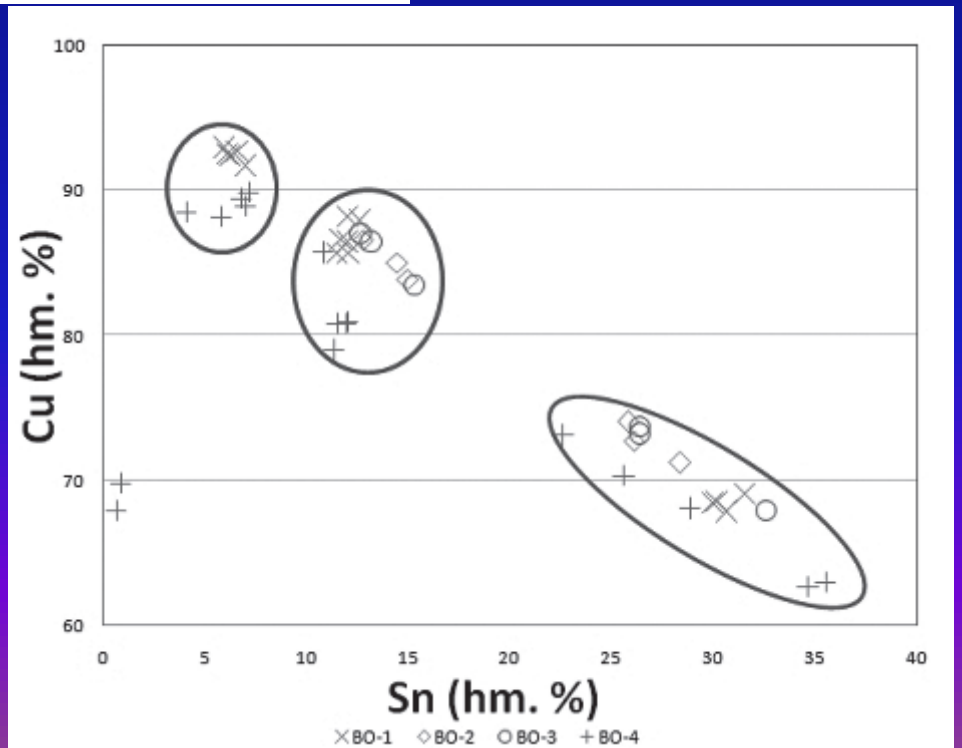
X-ray pattern of melting residues in Celtic crucibles and dosing plates (left)

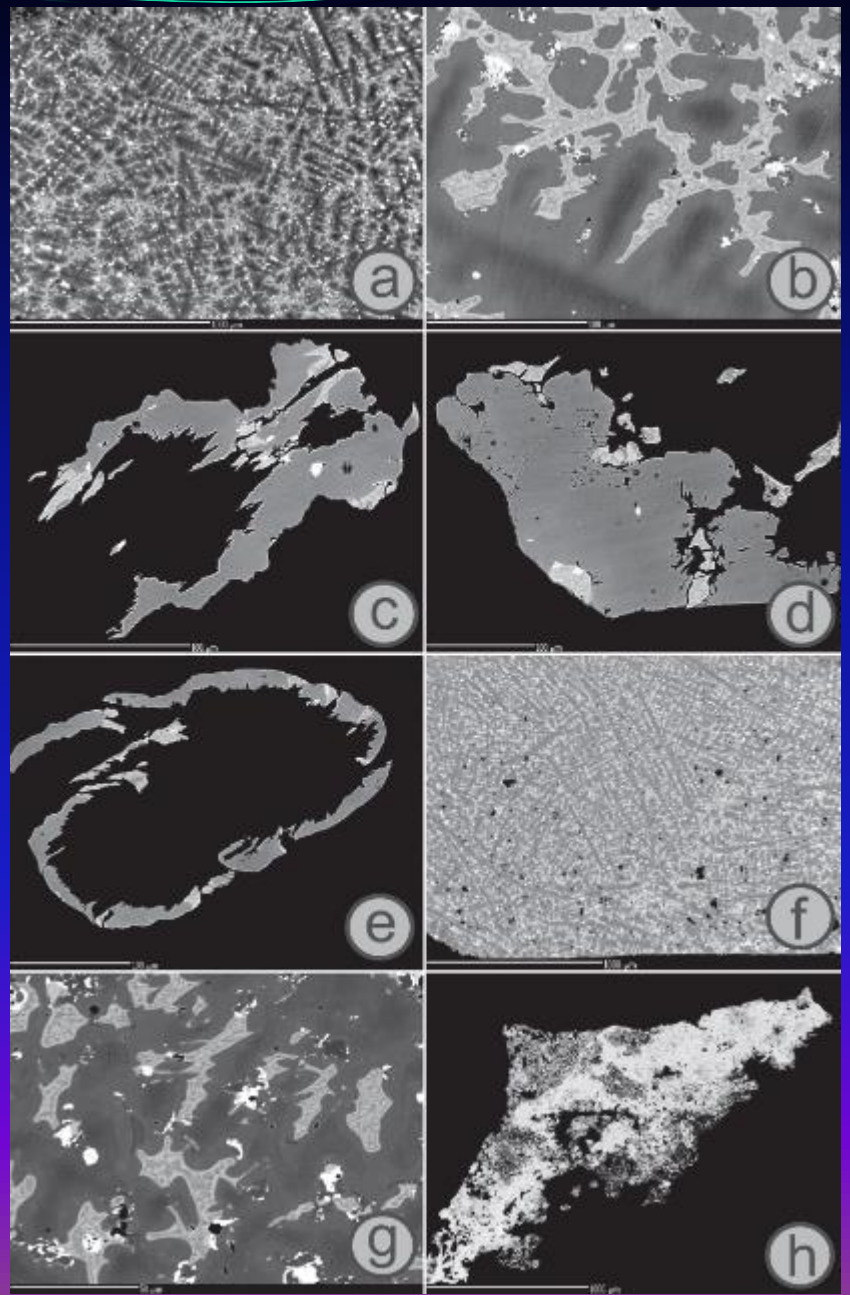
Comparison of Sn and Cu contents in individual parts of the sword of the Bronze Age (right)



Bell from Bojná

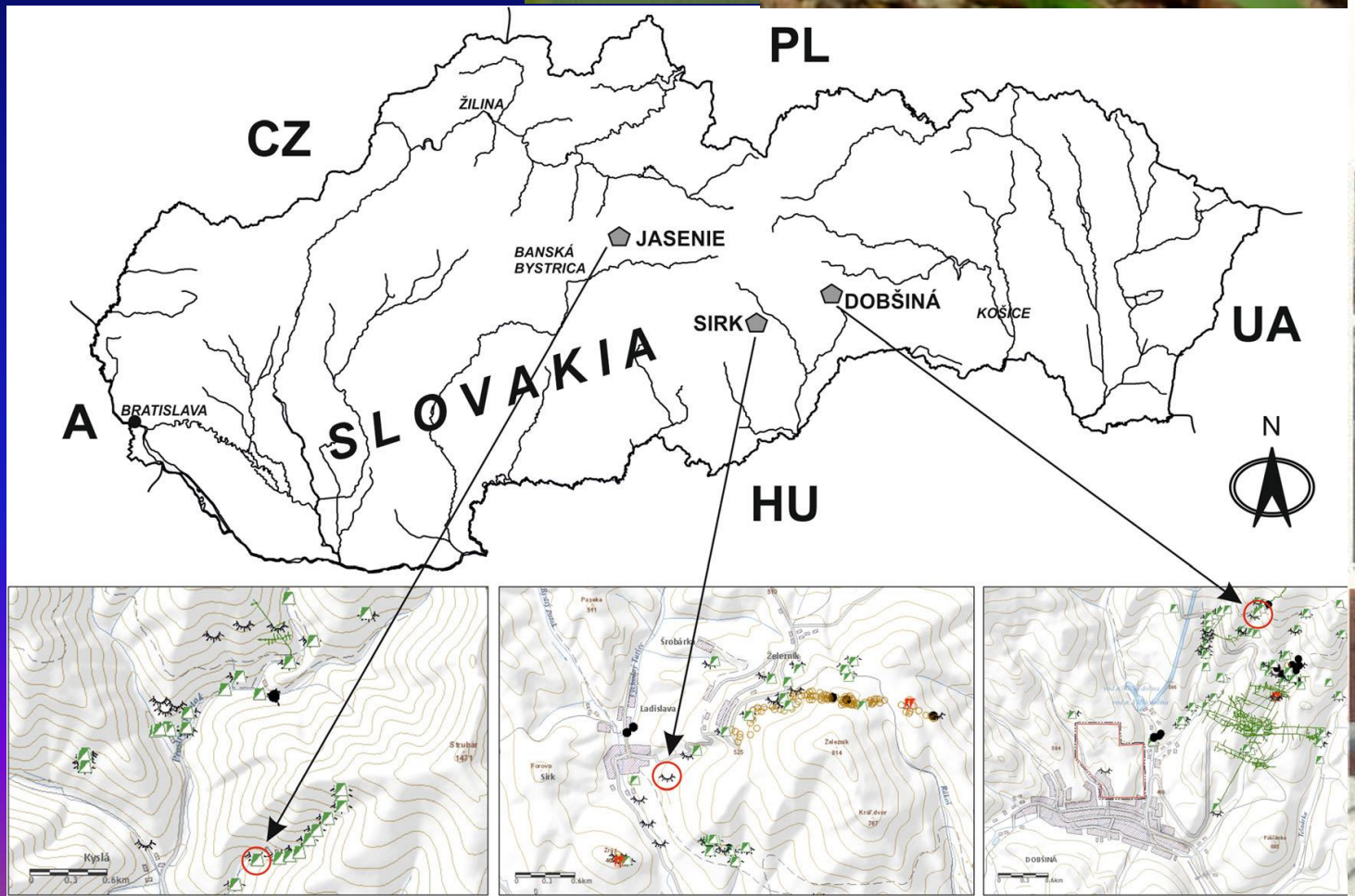
Study of chemical composition and metallurgy of a very rare bell and application in archeology.

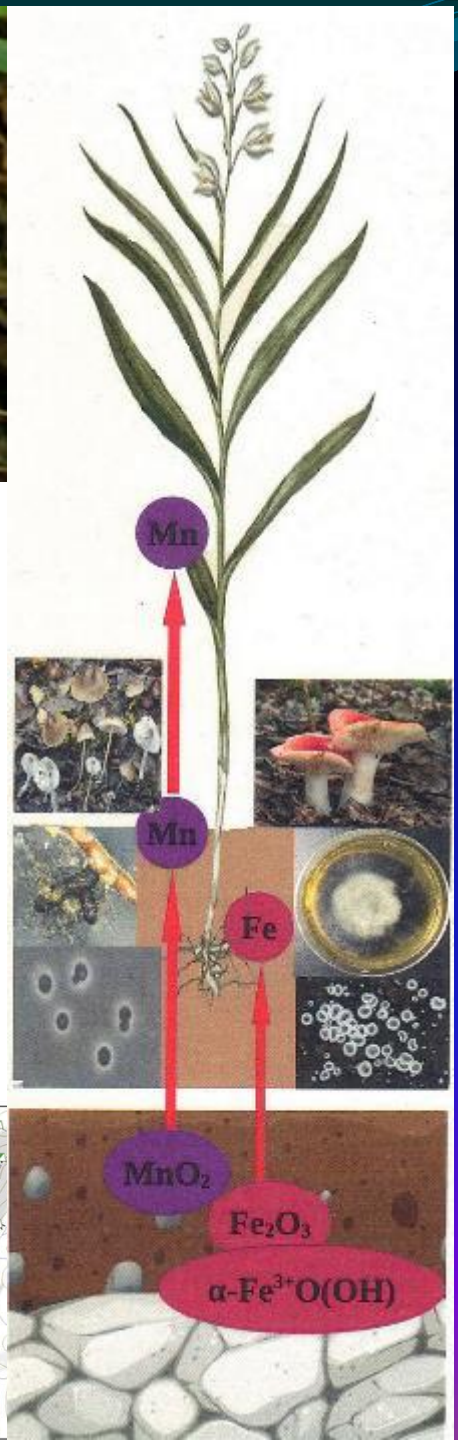


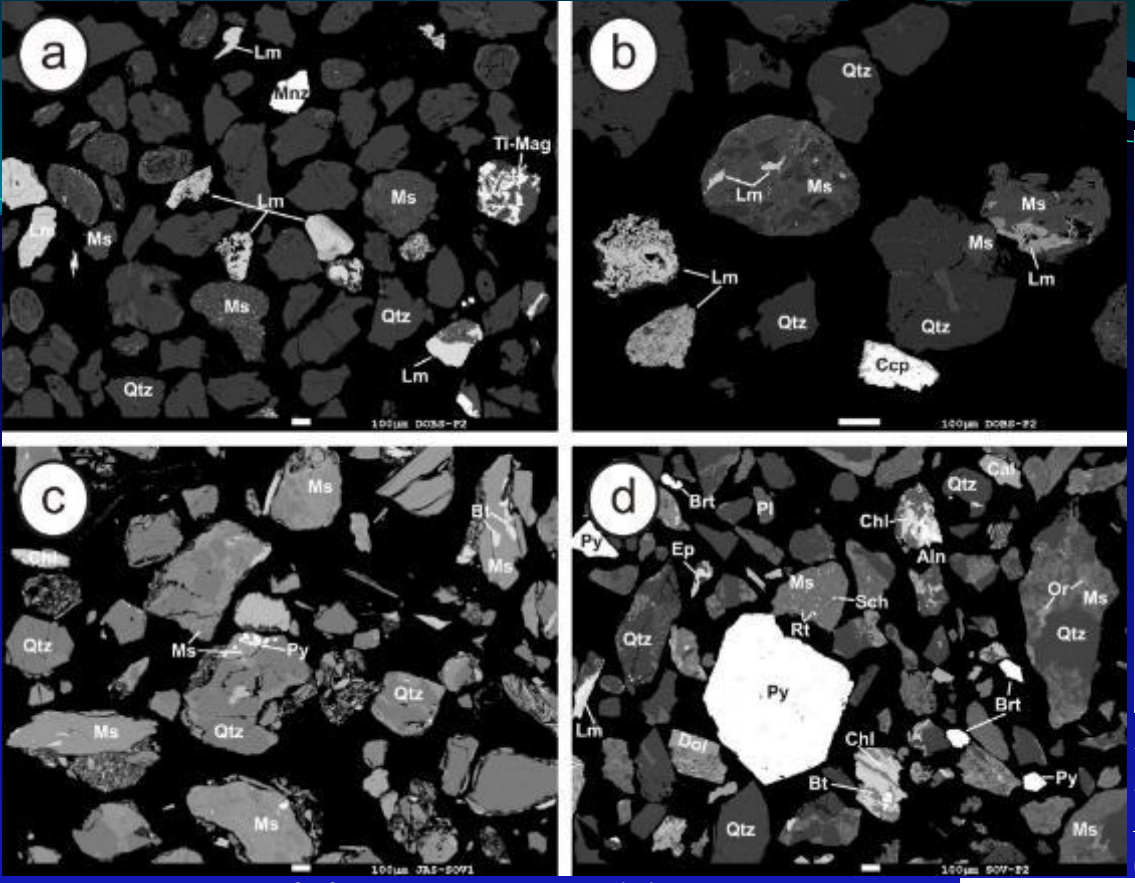


Environmental mineralogy

Study of orchids on mining heaps

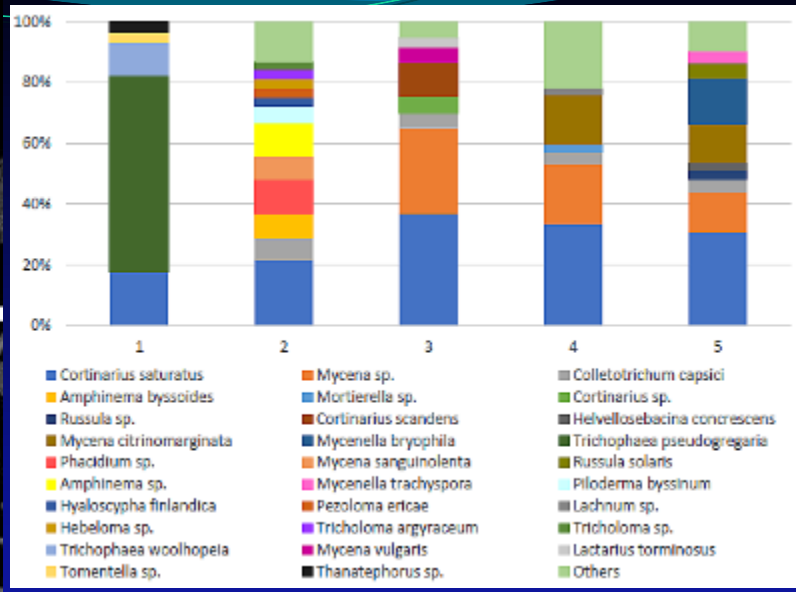




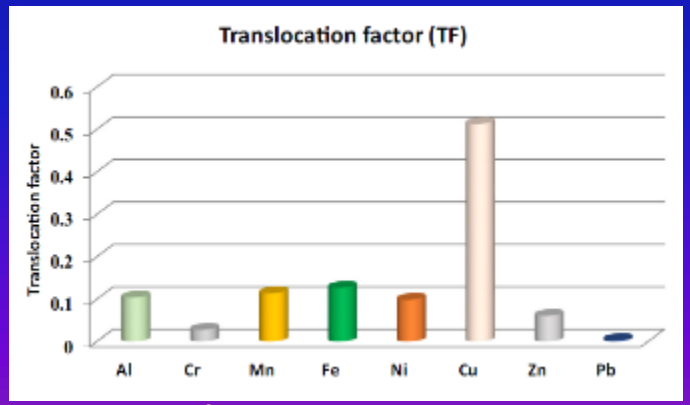


Mineral composition of of the heap material. Dobšiná (a,b) a Jasenie (c,d).

Fungal communities detected in the roots of orchids.

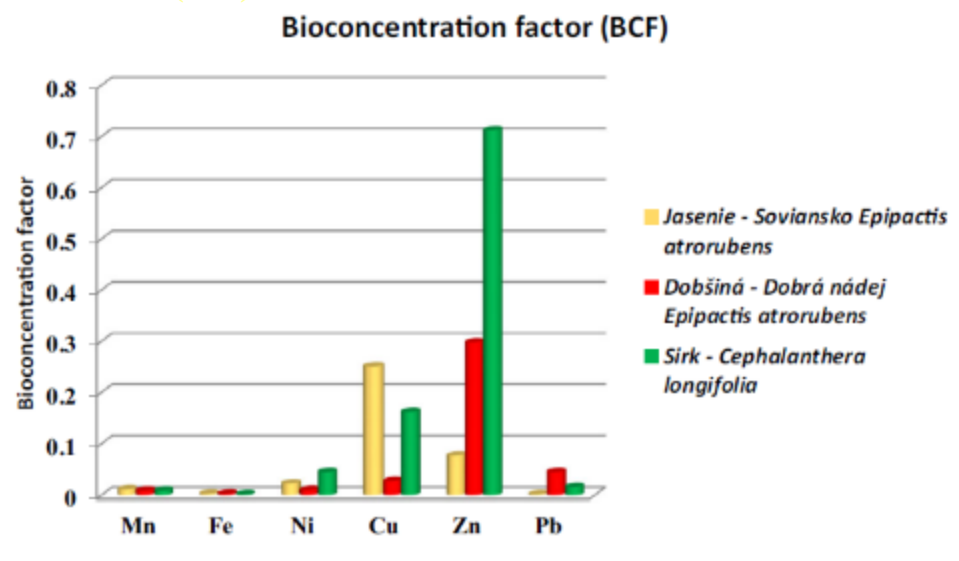


1) Epipactis atrorubens (Dobšiná), 2) *Epipactis atrorubens* (Jasenie), 3) *Platanthera bifolia* (Jasenie), 4) *Epipactis pontica* (Sirk), 5) *Cephalanthera longifolia* (Sirk)



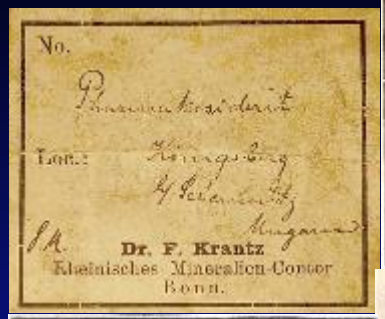
Translocation of heavy metals in above ground and belove ground part of orchid *Epipactis atrorubens* from the Pb-Zn mining deposit Jasenie – Soviansko

Bioconcentration of selected elements from contaminated mining soil in terrestrial orchids expressed as bioconcentration factor (BCF)



Museology

- Conservation and treatment of minerals
- Professional museological processing of the department's collections
- Study of historical mineral labels



§ Legislation

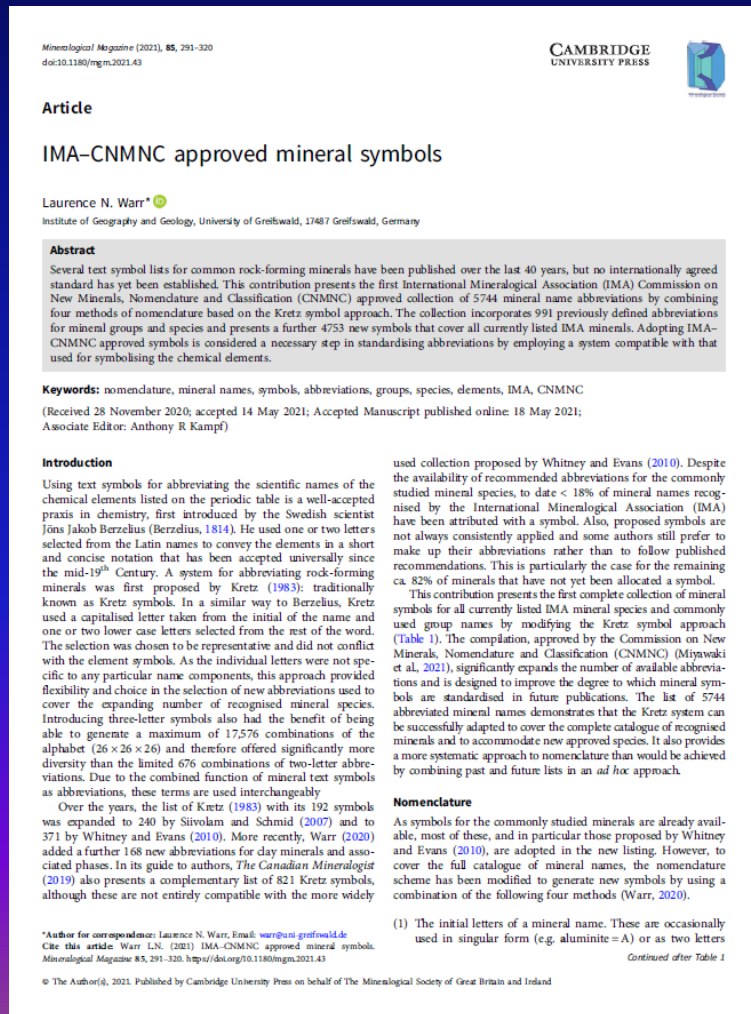
- col. M. Kern - Director of the Department of Environmental Crime at the Presidium of the Police Force of the Slovak Republic

Zákon NR SR č. 543/2002 Z. z. o ochrane prírody a krajiny
Act of the National Council of the Slovak Republic no. 543/2002 Coll. on nature and landscape protection
Zákon NR SR č. 206/2009 Z. z. o múzeách, galériách a ochrane predmetov múzejnej hodnoty a galerijnej hodnoty
Act of the National Council of the Slovak Republic no. 206/2009 Coll. on museums, galleries and the protection of objects of museum value and gallery value
Vyhláška MŽP č. ~~213/2000 (647/2008) o chránených nerastoch a chránených skamenelinách a o ich spoločenskom ohodnocovaní~~ (aktuálne zrušená)
V súčasnosti od 1.6.2021 je platná Vyhláška MŽP SR 170/2021, ktorou sa vykonáva zákon č. 543/2002 Z. z. o ochrane prírody a krajiny. (*At present, as of 1 June 2021, Decree of the Ministry of the Environment of the Slovak Republic 170/2021, which implements Act no. 543/2002 Coll. on nature and landscape protection)*

Commission on Nomenclature and Terminology in Mineralogy

Creation of Slovak terminology in mineralogical sciences in the near future:

- Gemological terminology
- Slovak names of meteorites
- Names of new crystallographic systems
- Meteoritic terminology
- New abbreviations for minerals



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Article

IMA–CNMNC approved mineral symbols

Laurence N. Warr*
Institute of Geography and Geology, University of Greifswald, 17487 Greifswald, Germany

Abstract

Several text symbol lists for common rock-forming minerals have been published over the last 40 years, but no internationally agreed standard has yet been established. This contribution presents the first International Mineralogical Association (IMA) Commission on New Minerals, Nomenclature and Classification (CNMNC) approved collection of 5744 mineral name abbreviations by combining four methods of nomenclature based on the Kretz symbol approach. The collection incorporates 991 previously defined abbreviations for mineral groups and species and presents a further 4753 new symbols that cover all currently listed IMA minerals. Adopting IMA–CNMNC approved symbols is considered a necessary step in standardising abbreviations by employing a system compatible with that used for symbolising the chemical elements.

Keywords: nomenclature, mineral names, symbols, abbreviations, groups, species, elements, IMA, CNMNC

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Introduction

Using text symbols for abbreviating the scientific names of the chemical elements listed on the periodic table is a well-accepted praxis in chemistry, first introduced by the Swedish scientist Jöns Jakob Berzelius (Berzelius, 1814). He used one or two letters selected from the Latin names to convey the elements in a short and concise notation that has been accepted universally since the mid-19th Century. A system for abbreviating rock-forming minerals was first proposed by Kretz (1983): traditionally known as Kretz symbols. In a similar way to Berzelius, Kretz used a capitalised letter taken from the initial of the name and one or two lower case letters selected from the rest of the word. The selection was chosen to be representative and did not conflict with the element symbols. As the individual letters were not specific to any particular name components, this approach provided flexibility and choice in the selection of new abbreviations used to cover the expanding number of recognised mineral species. Introducing three-letter symbols also had the benefit of being able to generate a maximum of 17,576 combinations of the alphabet (26 × 26 × 26) and therefore offered significantly more diversity than the limited 676 combinations of two-letter abbreviations. Due to the combined function of mineral text symbols as abbreviations, these terms are used interchangeably

Over the years, the list of Kretz (1983) with its 192 symbols was expanded to 240 by Siivolam and Schmid (2007) and to 371 by Whitney and Evans (2010). More recently, Warr (2020) added a further 168 new abbreviations for clay minerals and associated phases. In its guide to authors, *The Canadian Mineralogist* (2019) also presents a complementary list of 821 Kretz symbols, although these are not entirely compatible with the more widely used collection proposed by Whitney and Evans (2010). Despite the availability of recommended abbreviations for the commonly studied mineral species, to date < 18% of mineral names recognised by the International Mineralogical Association (IMA) have been attributed with a symbol. Also, proposed symbols are not always consistently applied and some authors still prefer to make up their abbreviations rather than to follow published recommendations. This is particularly the case for the remaining ca. 82% of minerals that have not yet been allocated a symbol.

This contribution presents the first complete collection of mineral symbols for all currently listed IMA mineral species and commonly used group names by modifying the Kretz symbol approach (Table 1). The compilation, approved by the Commission on New Minerals, Nomenclature and Classification (CNMNC) (Miyawaki et al., 2021), significantly expands the number of available abbreviations and is designed to improve the degree to which mineral symbols are standardised in future publications. The list of 5744 abbreviated mineral names demonstrates that the Kretz system can be successfully adapted to cover the complete catalogue of recognised minerals and to accommodate new approved species. It also provides a more systematic approach to nomenclature than would be achieved by combining past and future lists in an *ad hoc* approach.

Nomenclature

As symbols for the commonly studied minerals are already available, most of these, and in particular those proposed by Whitney and Evans (2010), are adopted in the new listing. However, to cover the full catalogue of mineral names, the nomenclature scheme has been modified to generate new symbols by using a combination of the following four methods (Warr, 2020).

(1) The initial letters of a mineral name. These are occasionally used in singular form (e.g. aluminite = A) or as two letters

Continued after Table 1

*Author for correspondence: Laurence N. Warr, Email: warr@uni-greifswald.de
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