

ALLANITE-(Ce)

Chemical formula: $\text{Ca}(\text{Ce,La,Y,Th})(\text{Fe}^{2+},\text{Mg})(\text{Al,Fe}^{3+})_2[\text{O}||(\text{OH})](\text{SiO}_4)(\text{Si}_2\text{O}_7)]$

Crystal system: monoclinic

Color in thin section: pleochroic with:

X = colorless, yellow-green, reddish brown

Y = green-brown, brown, brownish yellow

Z = pale brown, greenish brown to brownish red, reddish brown

Form: columnar idiomorphic to hypidiomorphic crystals, allotriomorphic grains or granular aggregates; often twinned

Cleavage: good on {001}, poor on {100} and {110}

Indices of refraction: $n_\alpha = 1.690 - 1.791$ $n_\beta = 1.700 - 1.815$ $n_\gamma = 1.703 - 1.828$

Birefringence: $0.013 - 0.036$

Optic sign: biaxial negative or positive

Alteration: often metamict

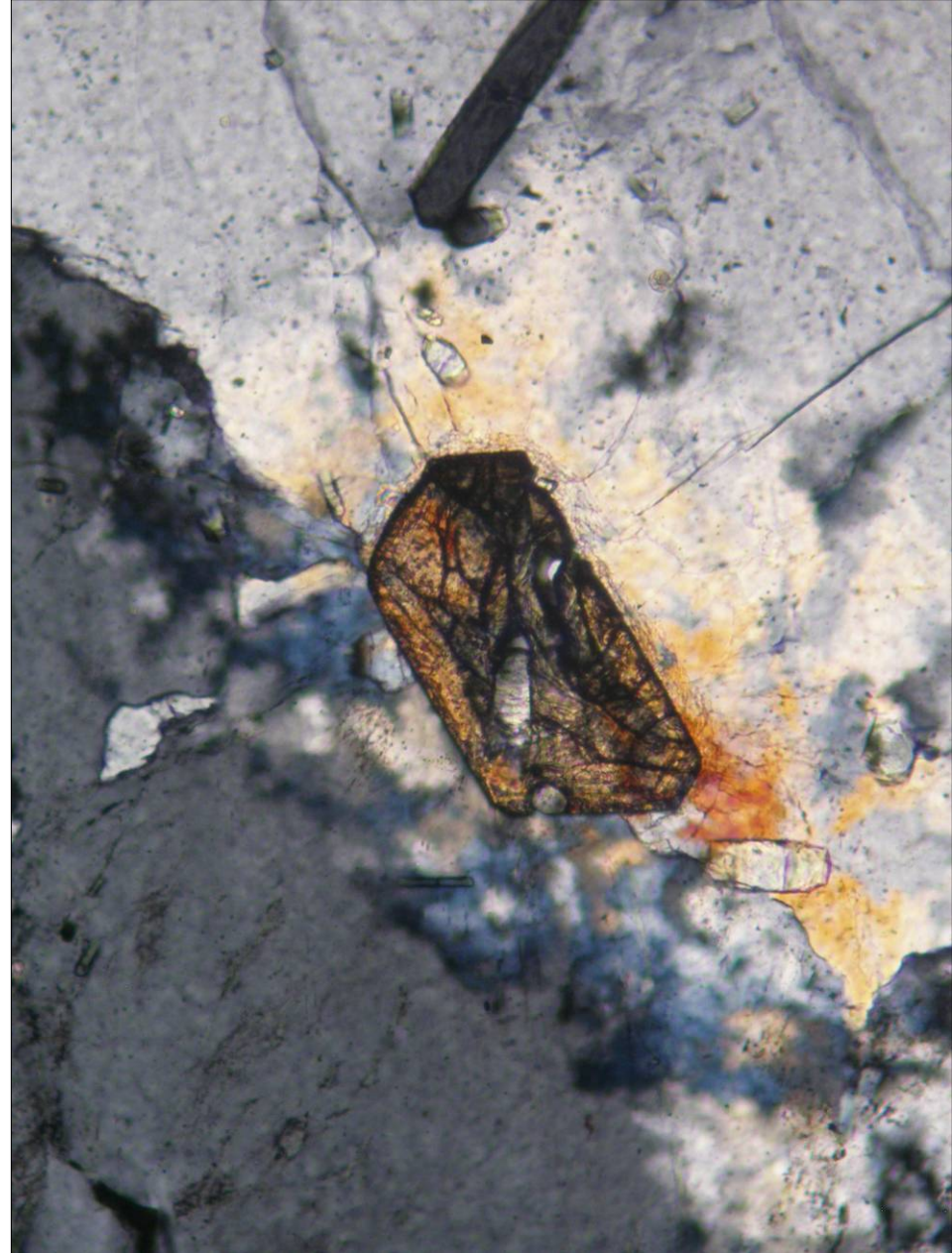
Occurrence: as an accessory mineral in granite, granodiorite, diorite, pegmatite, rhyolite, trachyte, gneiss, mica schist, and amphibolite

Similar minerals in thin sections: brown hornblende (perfect cleavage)

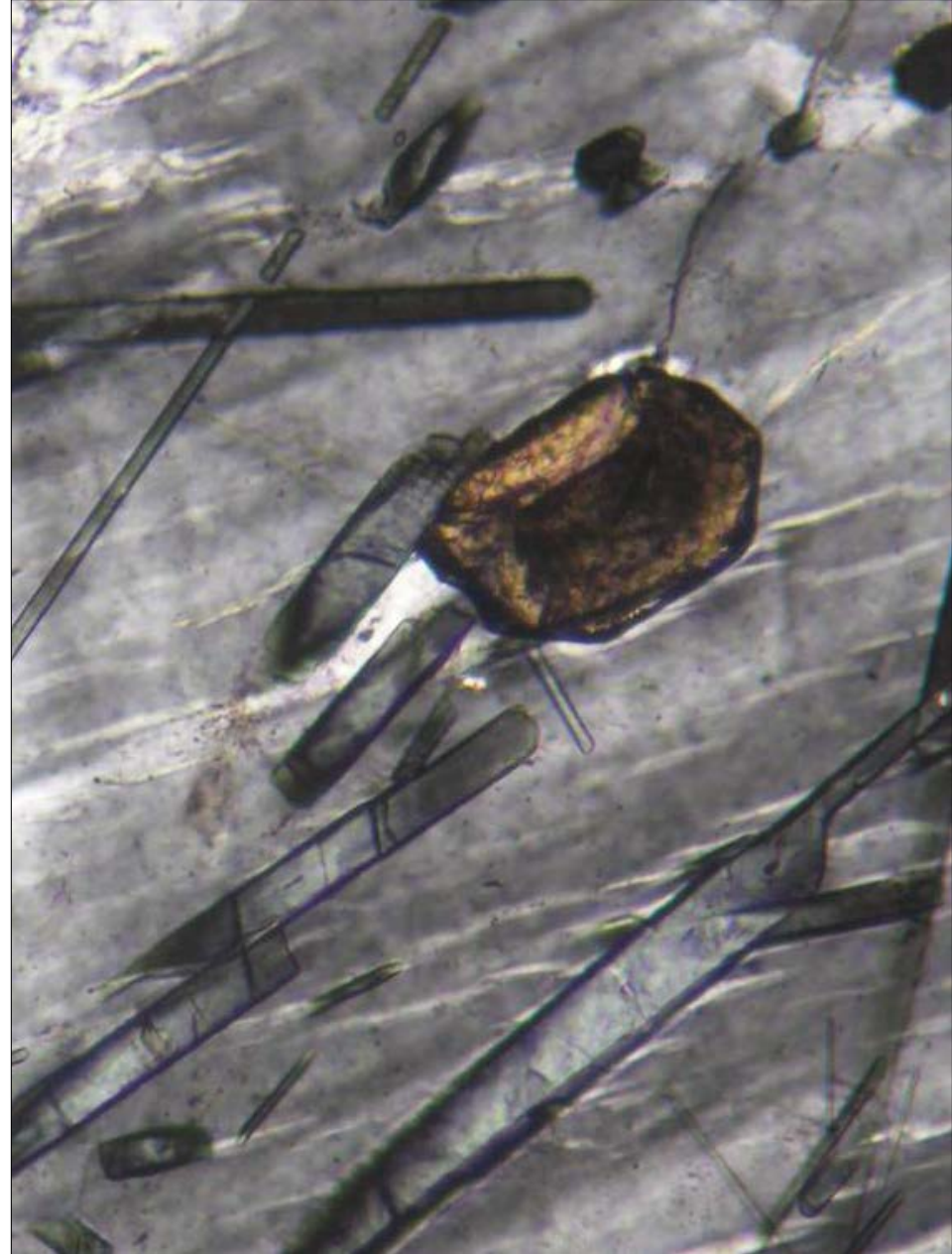
Note: inclusions of allanite in biotite, chlorite, and hornblende may be rimmed with pleochroic halos; metamict allanite may be nearly isotropic with lowest indices of refraction



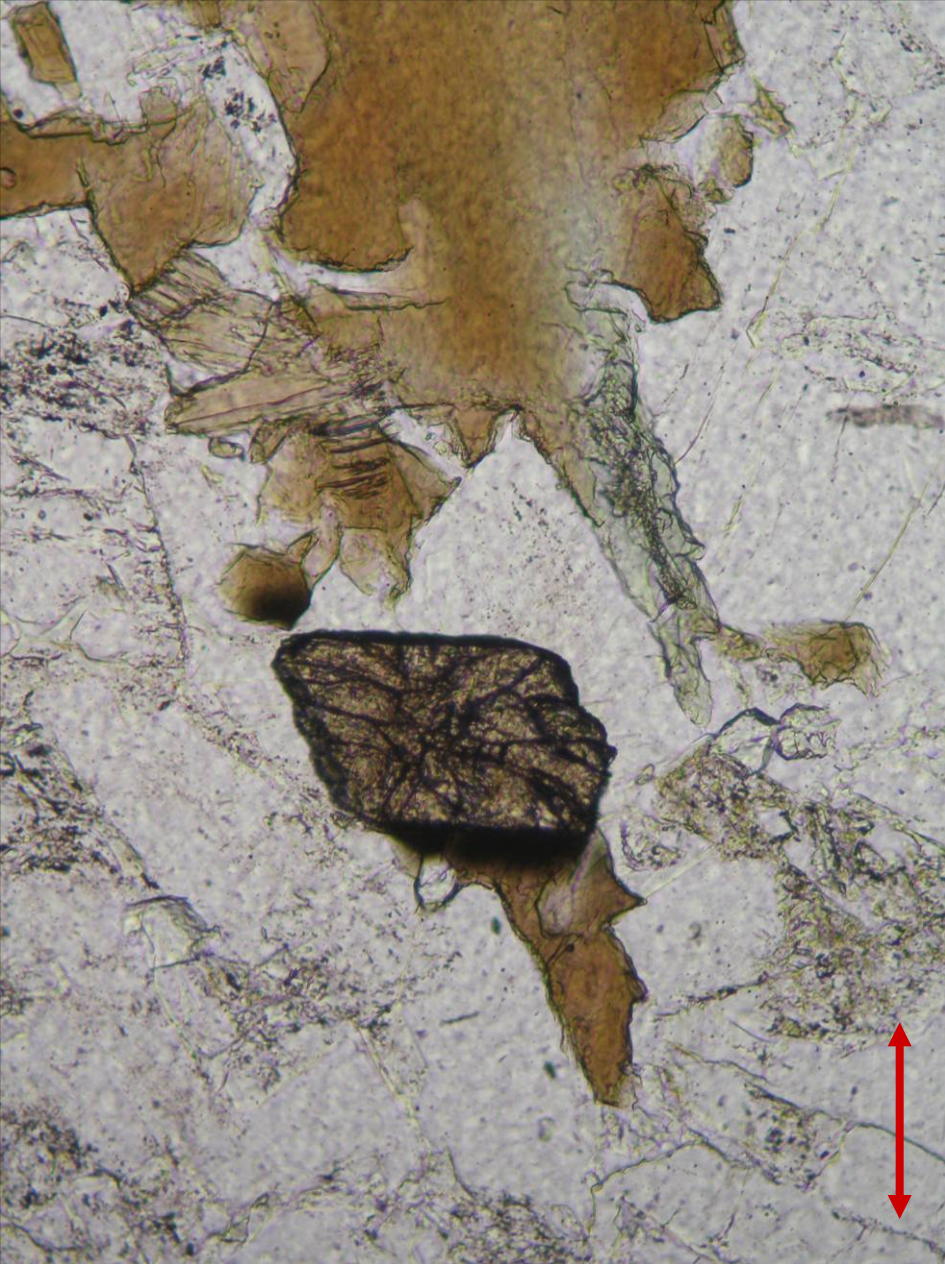
Allanite and apatite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



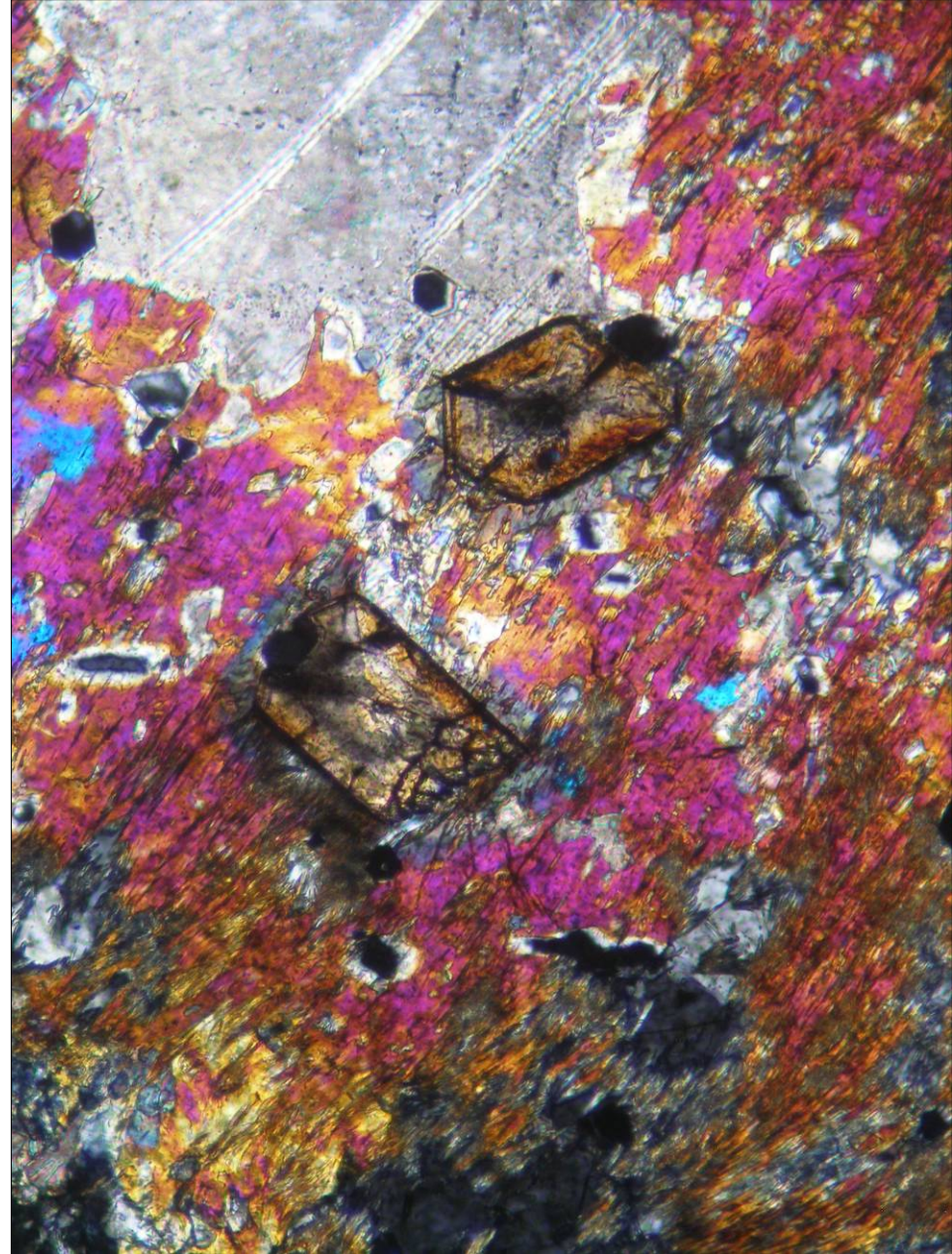
Allanite and apatite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



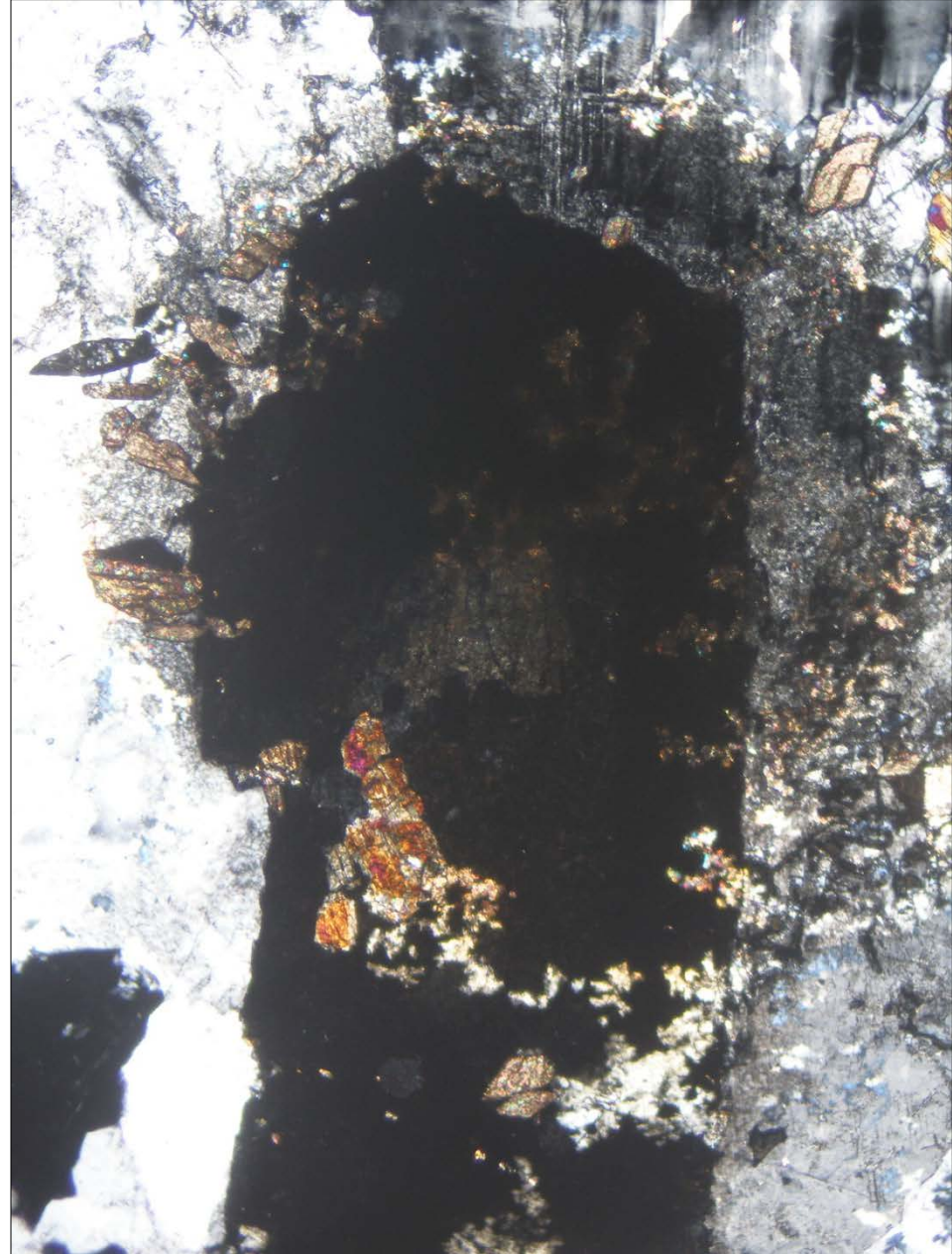
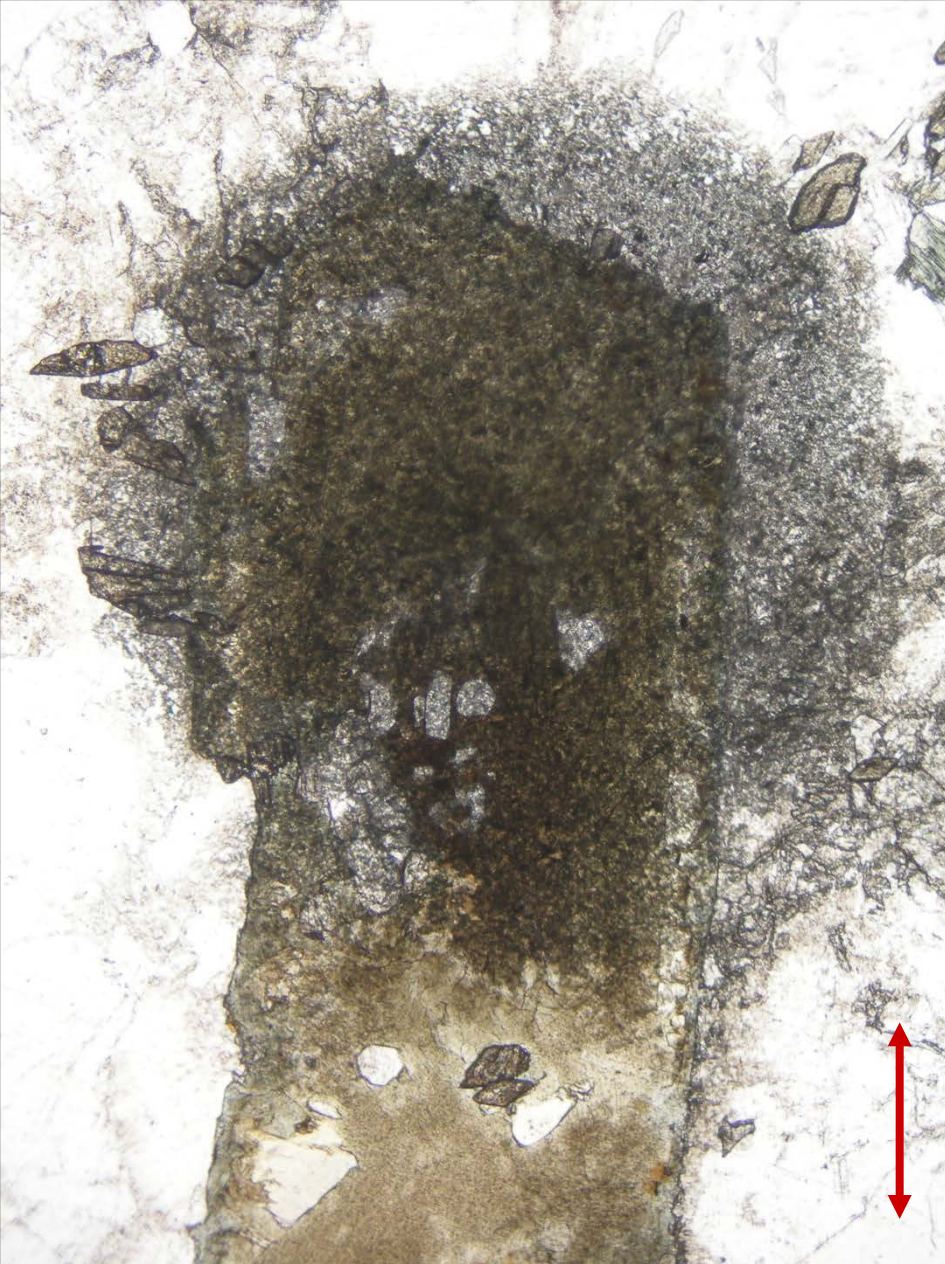
Allanite and apatite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.3 mm. Photo: JiZi.



Allanite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



Allanite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 0.7 mm. Photo: JiZi.



Allanite in pegmatite from Žulová, the Czech Republic; PPL (left) and XPL (right). Width of fields of view is ca. 2.1 mm. Photo: JiZi.