NEPHELINE

Chemical formula: $Na_3K[Al_4Si_4O_{16}]$

Crystal system: hexagonal

Color in thin section: colorless, may be clouded due to alteration

Form: stubby prismatic crystals; granular

Cleavage: weak on {10-10} and {0001}

Indices of refraction: n_ω = 1.532 – 1.544 n_ε = 1.536 – 1.549

Birefringence: 0.003 – 0.005

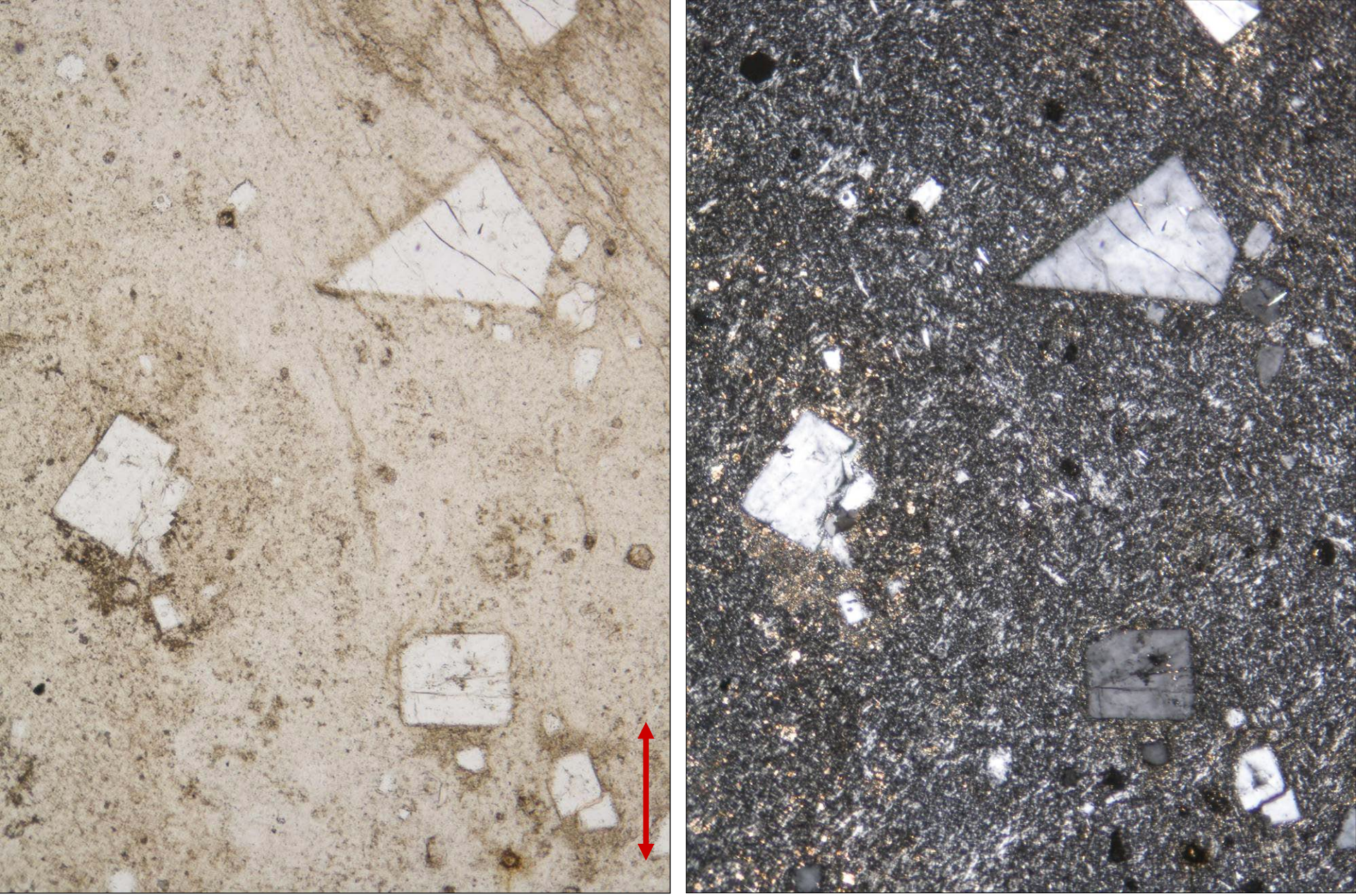
Optic sign: uniaxial negative

Sign of elongation: negative

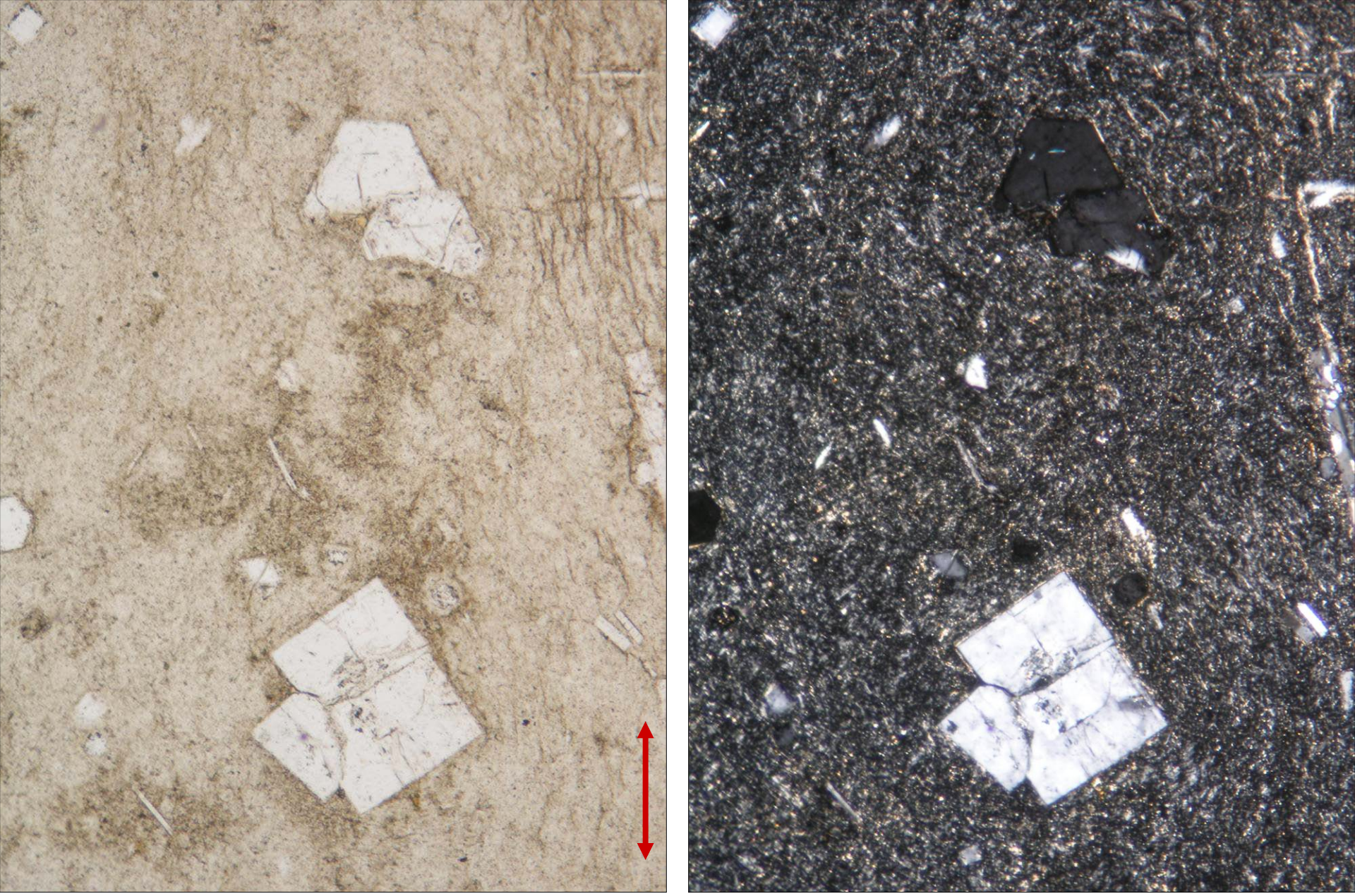
Alteration: may be altered to clay minerals, analcime, and calcite

Occurrence: nepheline syenite, nephelinite, nepheline basanite

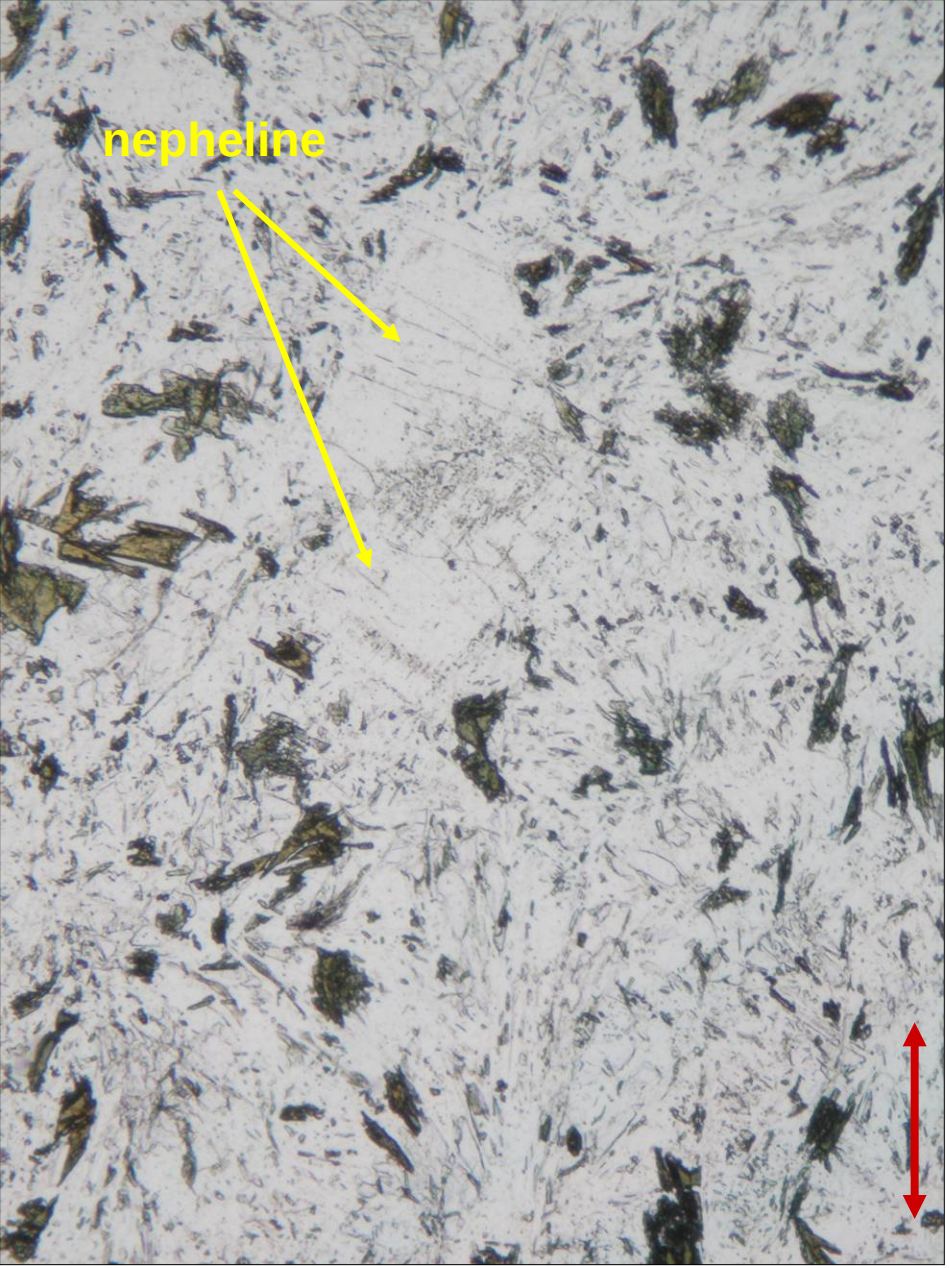
Similar minerals in thin sections: feldspars (the feldspar cleavage, twinning, higher birefringence), quartz (higher birefringence, lack of the clouding)

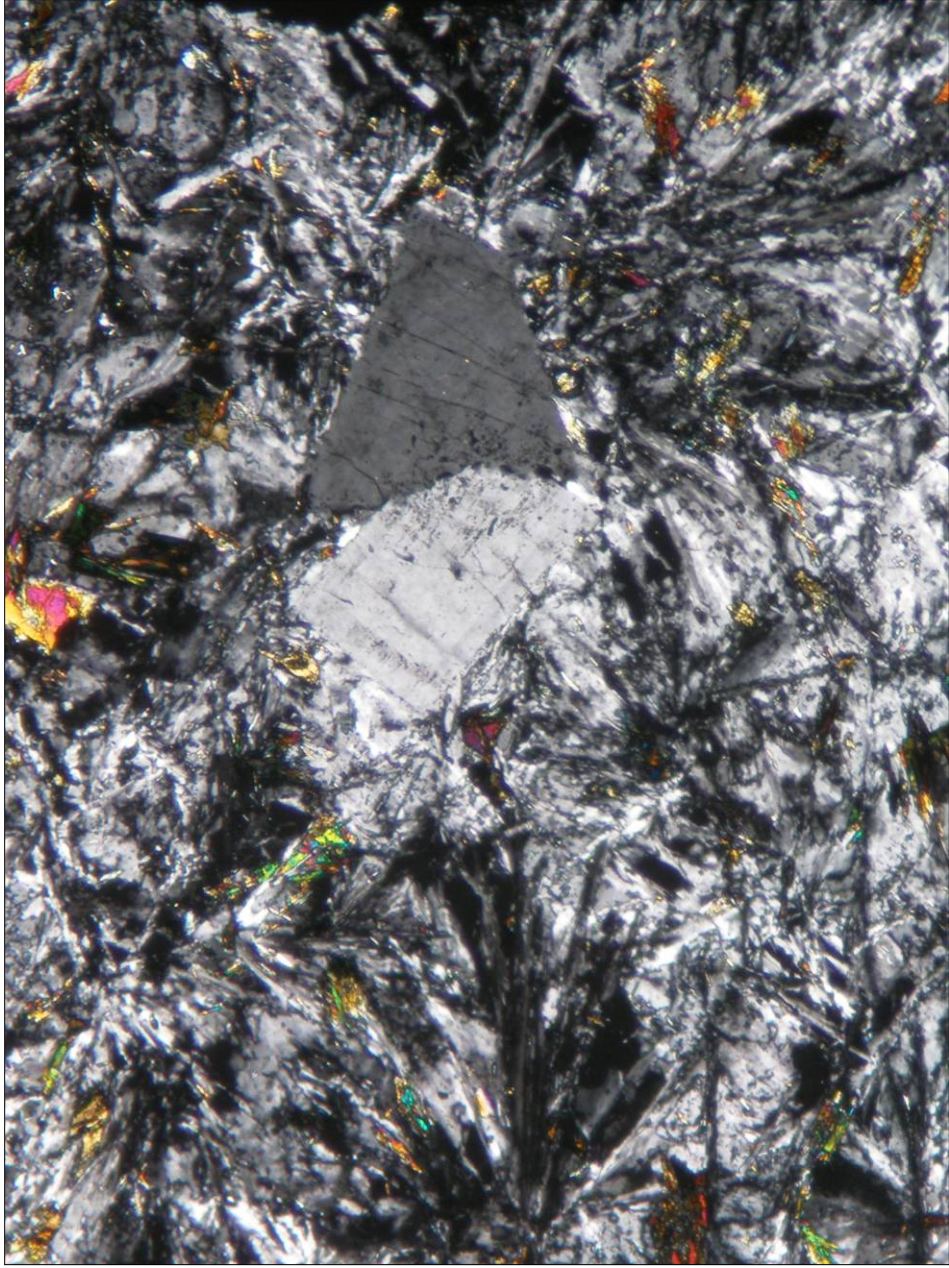


Nepheline phenocrysts in phonolite from an unknown locality; PPL (left) and XPL (right). Width of fields of view is ca. 1.7 mm. Photo: JiZi.

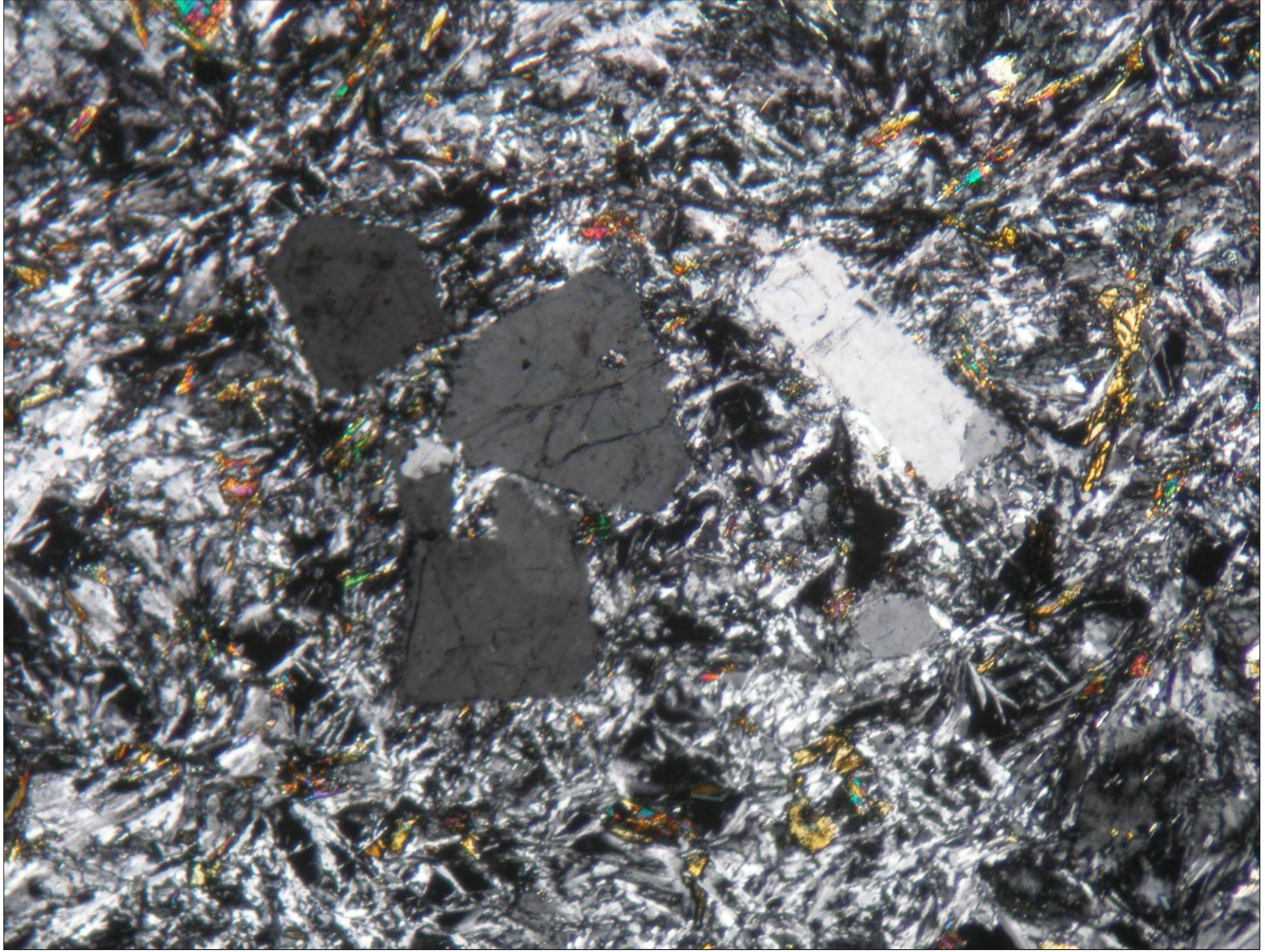


Nepheline phenocrysts in phonolite from an unknown locality; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.





Nepheline phenocrysts and clinopyroxene (aegirine) in phonolite (a variety called tinguaite) from an unknown locality; PPL (left) and XPL (right). Width of fields of view is ca. 1.5 mm. Photo: JiZi.



Nepheline phenocrysts and clinopyroxene (aegirine) in phonolite (a variety called tinguaite) from an unknown locality; XPL. Field of view is ca. 1.8 mm wide. Photo: JiZi.