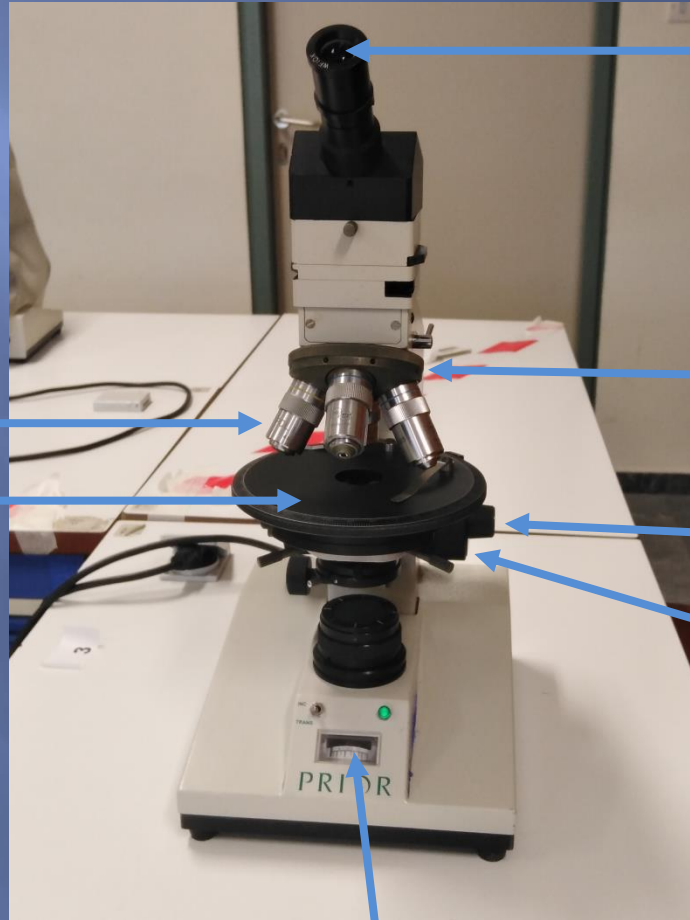


ΟΡΥΚΤΟΛΟΓΙΑ

ΕΡΓΑΣΤΗΡΙΟ

ΕΡΓΑΣΤΗΡΙΟ

ΕΠΑΝΑΛΗΠΤΙΚΟ



Προσοφθάλμιος φακός

Φορέας
αντικειμενικών φακών

Μικρομετρικός
κοχλίας

Μακρομετρικός
κοχλίας

Ένδειξη έντασης φωτός

Αντικειμενικοί φακοί

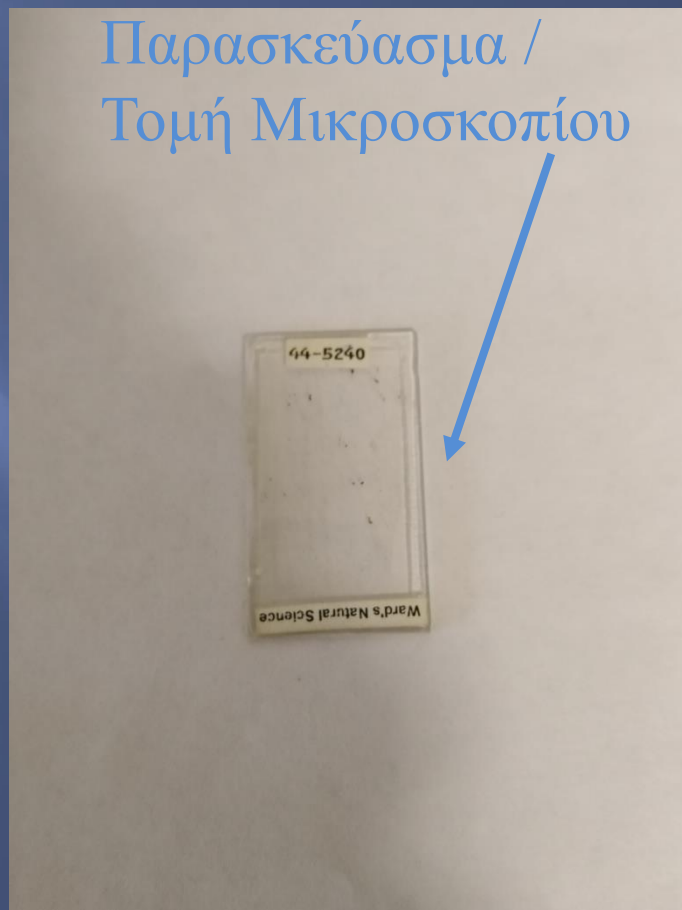
Τράπεζα μικροσκοπίου



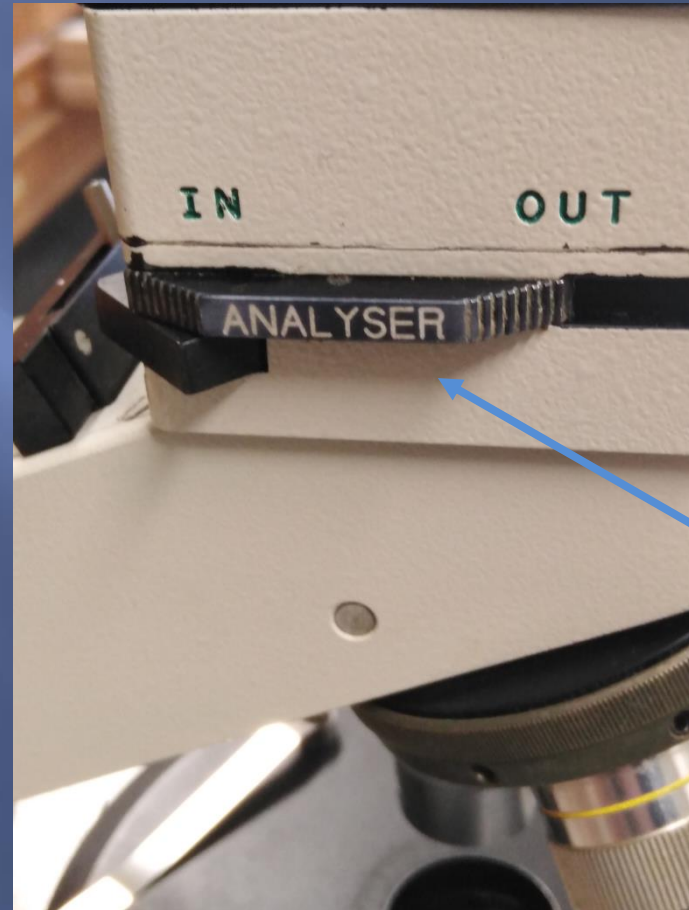
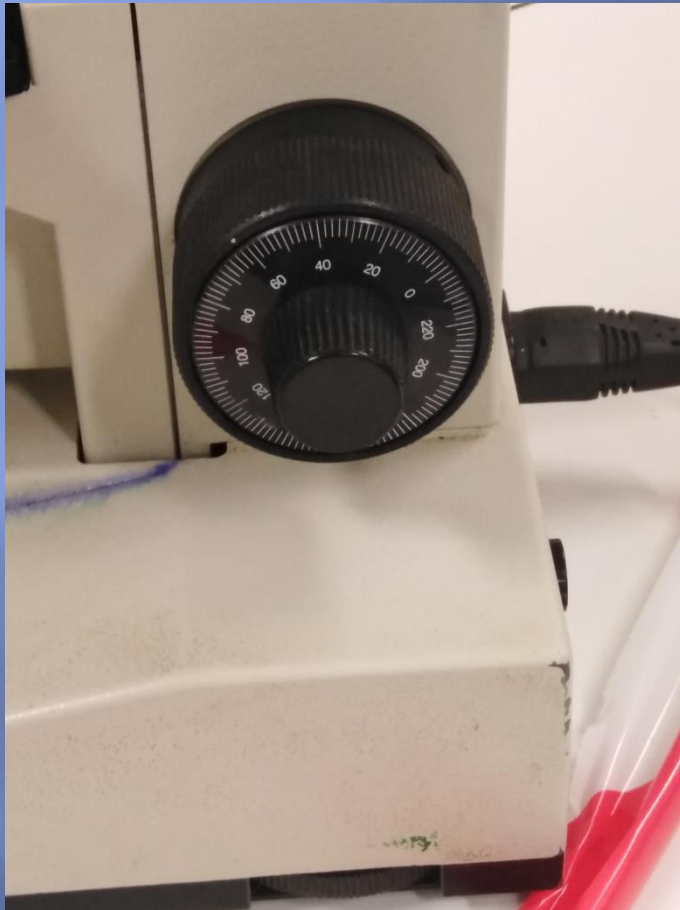
Ελατηριωτό άγκιστρο



Παρασκεύασμα /
Τομή Μικροσκοπίου







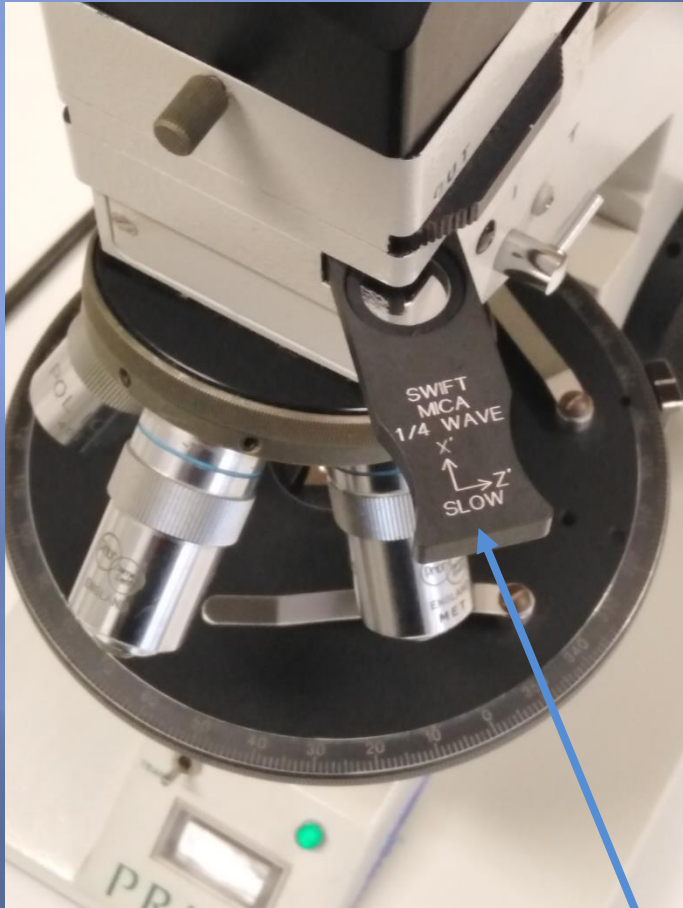
Αναλυτής
NICOLS



Φακός BERTNAND



Συμπυκνωτικός φακός



Αντισταθμιστής

ΙΔΙΟΤΗΤΕΣ ΚΑΙ ΑΝΑΓΝΩΡΙΣΗ ΟΡΥΚΤΩΝ

// NICOLS (ANALYSER OUT)

- Το ΣΧΗΜΑ: Ιδιόμορφο σχήμα, Υπιδιόμορφο σχήμα, Αλλοτριόμορφο σχήμα
- Ο ΣΧΙΣΜΟΣ: Τέλειος, καλός, σαφής, ασαφής, ατελής και γωνία σχισμών
- ΧΡΩΜΑ / ΠΛΕΟΧΡΩΙΣΜΟΣ
- ΑΝΑΓΛΥΦΟ: Χαμηλό ανάγλυφο, Μέτριο ανάγλυφο, Υψηλό ανάγλυφο

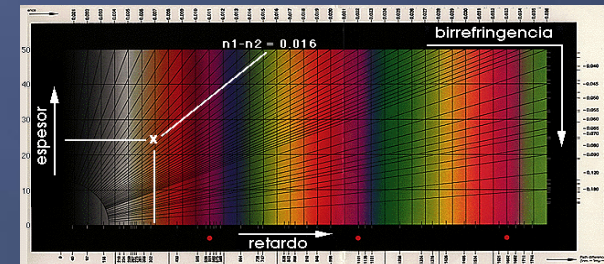
⊥ NICOLS (ANALYSER IN Η' ΔΙΑΣΤΑΥΡΩΜΕΝΑ NICOLS)

➤ ΙΣΟΤΡΟΠΟ Η' ΑΝΙΣΟΤΡΟΠΟ ΟΡΥΚΤΟ:

- ❑ *Ισότροπα: Μαύρα στα διασταυρωμένα Nicols και με στροφή της τράπεζας.*
- ❑ *Ανισότροπα: Έχουν χρώματα συμβολής.*

⊥NICOLS (ANALYSER IN Η' ΔΙΑΣΤΑΥΡΩΜΕΝΑ NICOLS)

- ΧΡΩΜΑΤΑ ΣΥΜΒΟΛΗΣ Η' ΠΟΛΩΣΗΣ Η' ΔΙΠΛΟΘΛΑΣΤΙΚΟΤΗΤΑ (MONO τα ανισότροπα ορυκτά): Μέγιστο με την τάξη του

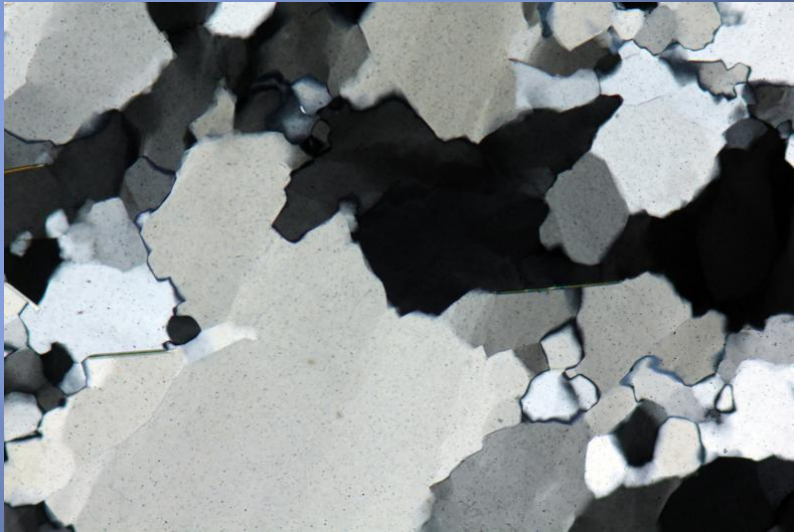


<http://edafologia.ugr.es/optmine/xplorios/cordenew.htm>

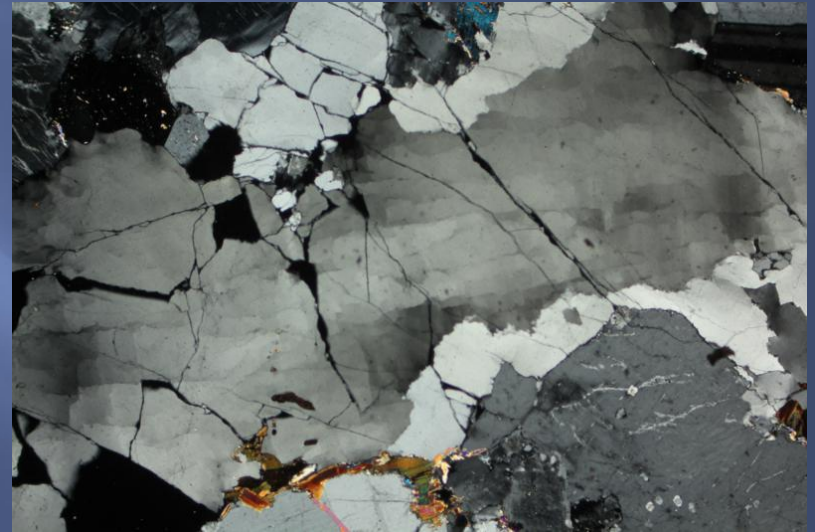
- ΚΑΤΑΣΒΕΣΗ- MONO τα ανισότροπα: Ορθή, Πλάγια (γωνία κατάσβεσης), Κυματοειδής, Συμμετρική (είδος πλάγιας)
- ΚΩΝΟΣΚΟΠΙΚΗ ΕΙΚΟΝΑ -MONO τα ανισότροπα: (Μονάξονες ή διάξονες και οπτικό σημείο (+ ή -))

No. Λεπτής τομής	Χρώμα/ Χρώματα πλεοχρωισμού	Ανάγλυφο (υψηλό, χαμηλό, μέτριο)	Σχισμός (1 ή 2, τέλειος, καλός, κακός, δεν υπάρχει)	Κρυσταλλικό σχήμα (ιδιόμορφο, υπιδιόμορφο, αλλοτριόμορφο)	Διπλοθλασ τικότητα (μέγιστο χρώμα συμβολής με την τάξη του)	Μέγιστη γωνία Κατάσβεσ ης	Διδυμία, Ζώνωση, Απομίξεις	Οπτικός χαρακτήρας (Μονάξονας- Διάξονας, +ή-)	

Χαλαζίας

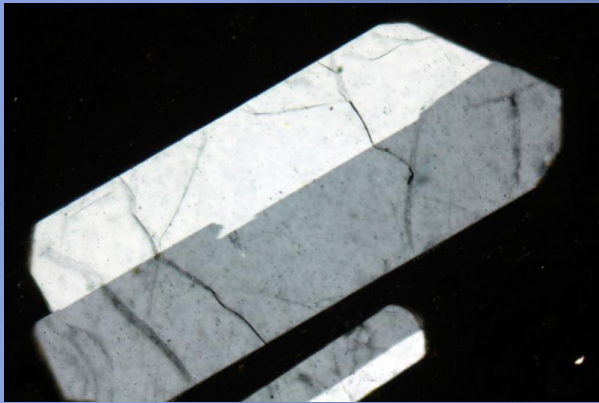


[www.alexstrekeisen.it/immagini/meta/granoblastica2012h\(4\).jpg](http://www.alexstrekeisen.it/immagini/meta/granoblastica2012h(4).jpg)



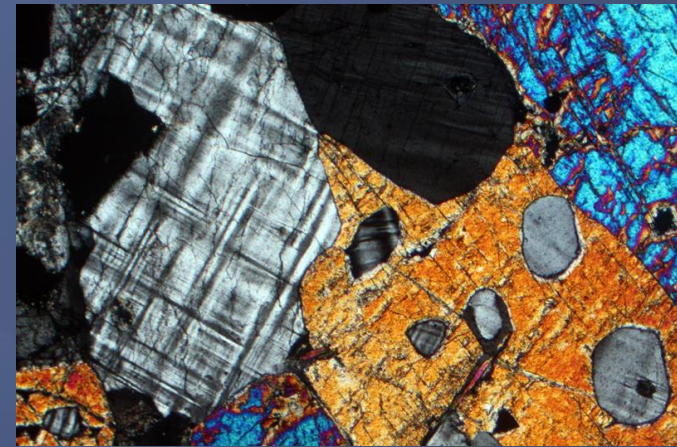
<http://www.alexstrekeisen.it/english/pluto/quartz.php>

Άστριοι (αλκαλικοί, πλαγιόκλαστα)



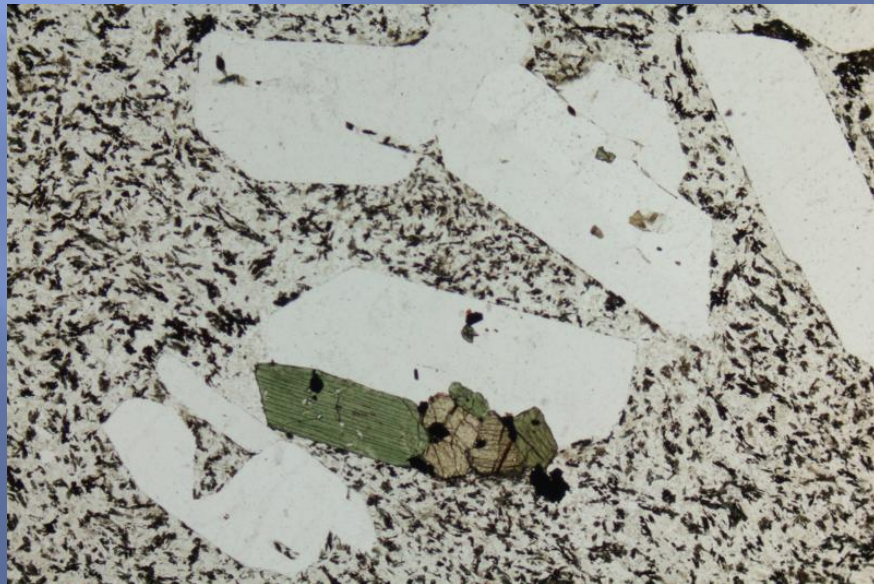
⊥ Nicols

www.alexstrekeisen.it/immagini/vulc/sanidino2013.jpg



⊥ Nicols

[www.alexstrekeisen.it/immagini/pluto/scapolite\(53\).jpg](http://www.alexstrekeisen.it/immagini/pluto/scapolite(53).jpg)



// Nicols

[www.alexstrekeisen.it/immagini/vulc/sanididofenocristalli\(8\).jpg](http://www.alexstrekeisen.it/immagini/vulc/sanididofenocristalli(8).jpg)

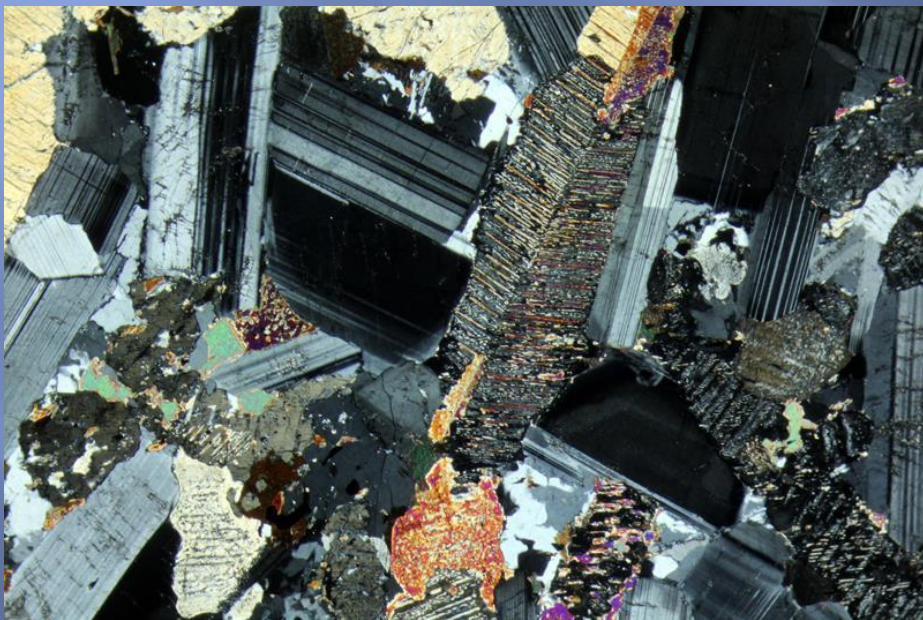


⊥ Nicols

[www.alexstrekeisen.it/immagini/vulc/sanididofenocristalli\(9\).jpg](http://www.alexstrekeisen.it/immagini/vulc/sanididofenocristalli(9).jpg)

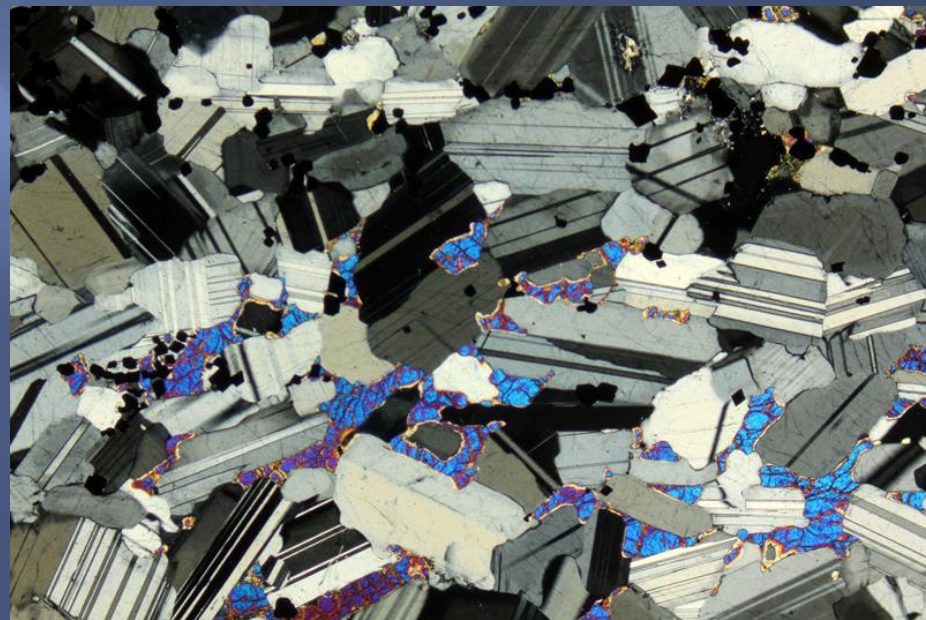
Άστριοι (πλαγιόκλαστα)

Πλαγιόκλαστα



⊥Nicols

[www.alexstrekeisen.it/immagini/pluto/neroassoluto\(2\).jpg](http://www.alexstrekeisen.it/immagini/pluto/neroassoluto(2).jpg)



⊥Nicols

[www.alexstrekeisen.it/immagini/pluto/rum\(10\).jpg](http://www.alexstrekeisen.it/immagini/pluto/rum(10).jpg)

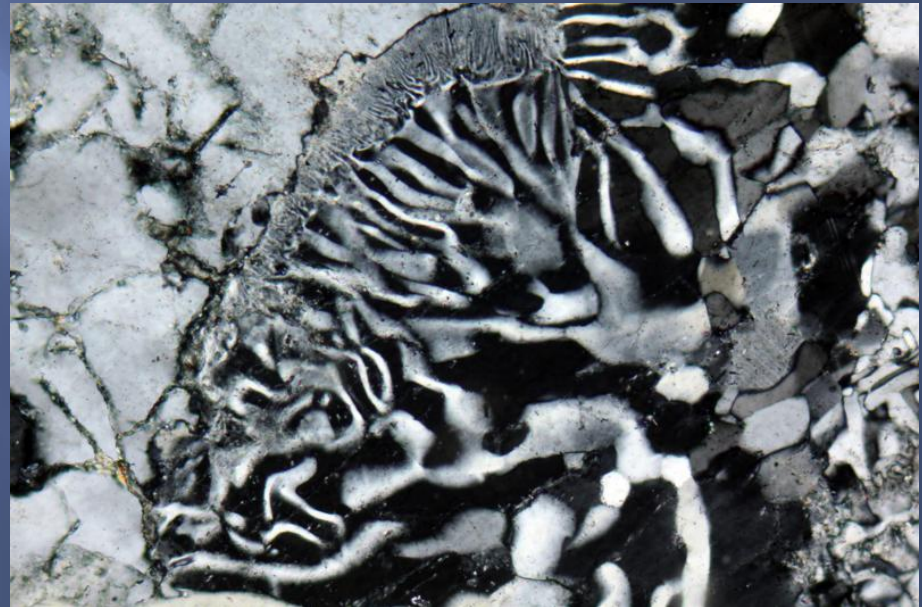
Άστριοι (αλκαλικοί, πλαγιόκλαστα)

Δομές σε ορυκτά χαλαζία και αστρίων



⊥ Nicols

[www.alexstrekeisen.it/immagini/pluto/granitofel_dspatialcalini001\(9\).jpg](http://www.alexstrekeisen.it/immagini/pluto/granitofel_dspatialcalini001(9).jpg)



⊥ Nicols

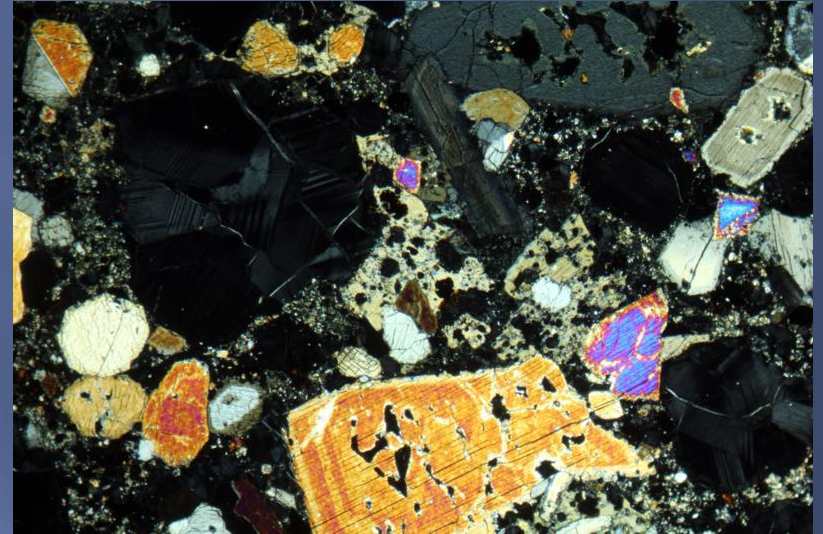
[www.alexstrekeisen.it/immagini/pluto/mirmechy\(5\).jpg](http://www.alexstrekeisen.it/immagini/pluto/mirmechy(5).jpg)

Αστριοειδή



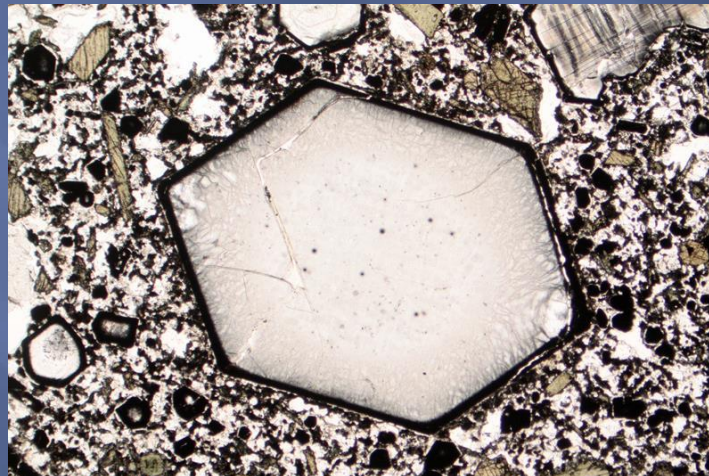
⊥ Nicols

[www.alexstrekeisen.it/immagini/pluto/nefelinolite\(4\).jpg](http://www.alexstrekeisen.it/immagini/pluto/nefelinolite(4).jpg)



⊥ Nicols

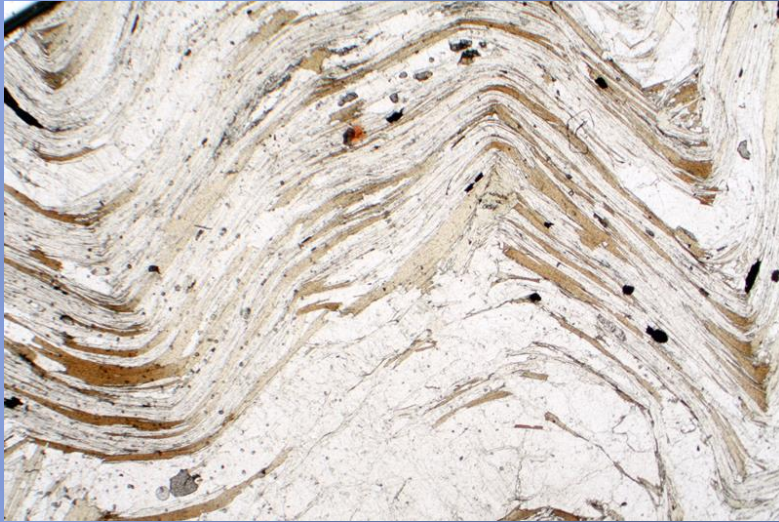
[www.alexstrekeisen.it/immagini/pluto/foiolitevulsini2012\(9\).jpg](http://www.alexstrekeisen.it/immagini/pluto/foiolitevulsini2012(9).jpg)



// Nicols

[www.alexstrekeisen.it/immagini/vulc/vulture2013\(18\).jpg](http://www.alexstrekeisen.it/immagini/vulc/vulture2013(18).jpg)

Μοσχοβίτης



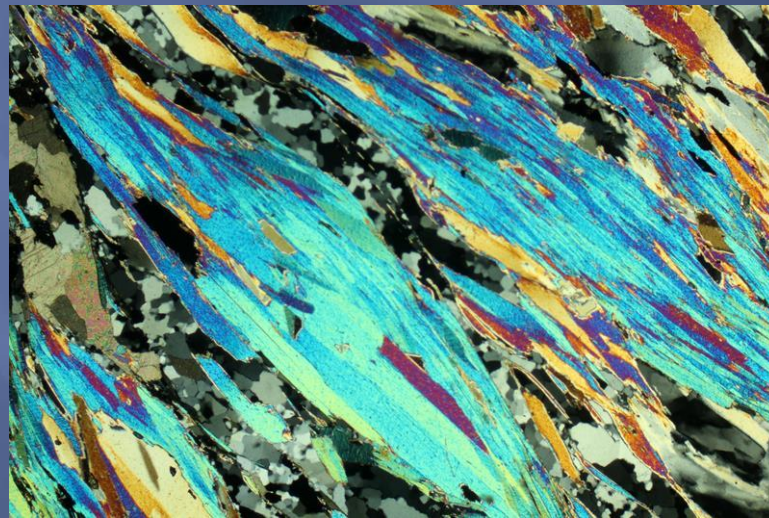
// Nicols

[www.alexstrekeisen.it/immagini/meta/micascisto0093\(41\).jpg](http://www.alexstrekeisen.it/immagini/meta/micascisto0093(41).jpg)



⊥ Nicols

[www.alexstrekeisen.it/immagini/meta/micascisto0093\(42\).jpg](http://www.alexstrekeisen.it/immagini/meta/micascisto0093(42).jpg)



⊥ Nicols

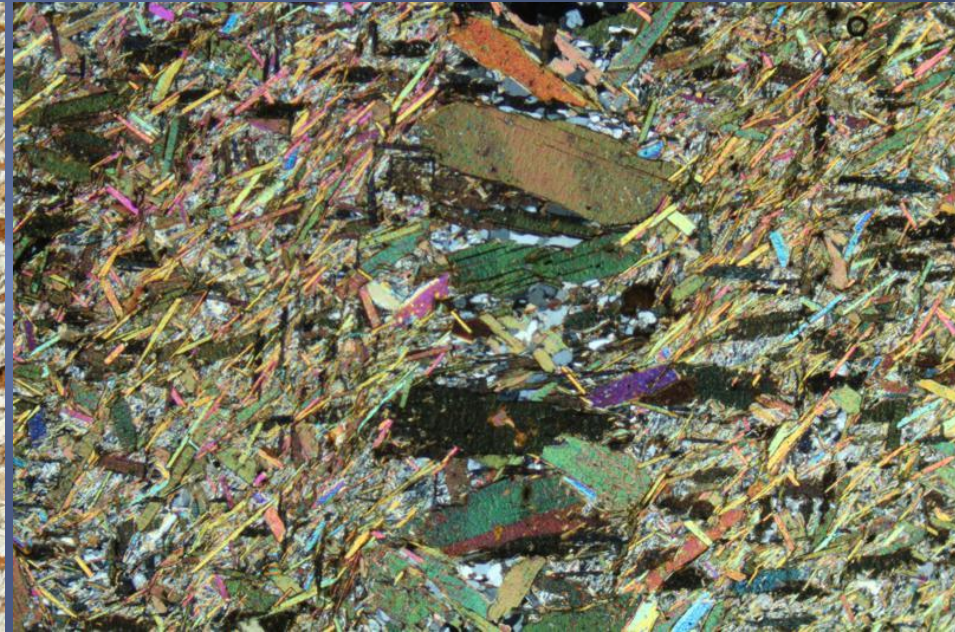
[www.alexstrekeisen.it/immagini/meta/muscovitealpi\(3\).jpg](http://www.alexstrekeisen.it/immagini/meta/muscovitealpi(3).jpg)

Βιοτίτης



// Nicols

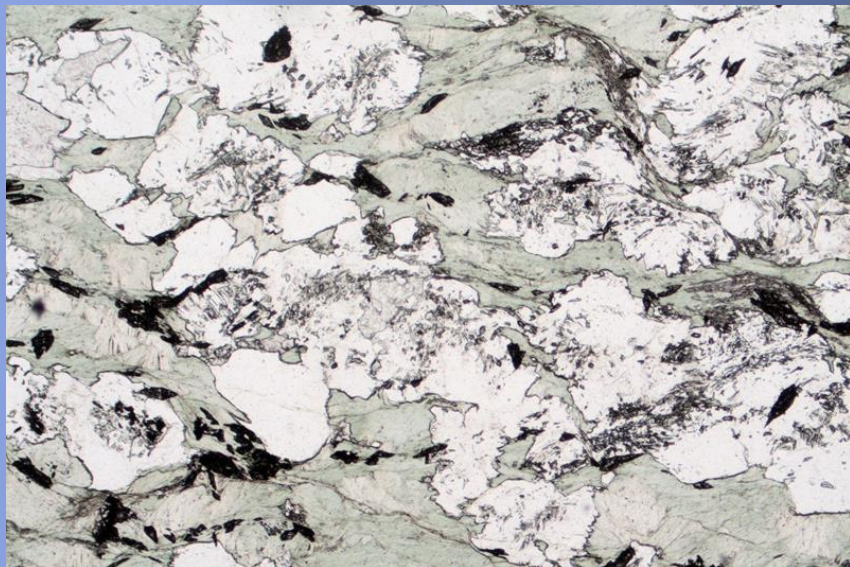
[www.alexstrekeisen.it/immagini/meta/biotitemeta\(6\).jpg](http://www.alexstrekeisen.it/immagini/meta/biotitemeta(6).jpg)



⊥ Nicols

[www.alexstrekeisen.it/immagini/meta/biotitemeta\(2\).jpg](http://www.alexstrekeisen.it/immagini/meta/biotitemeta(2).jpg)

Χλωρίτης



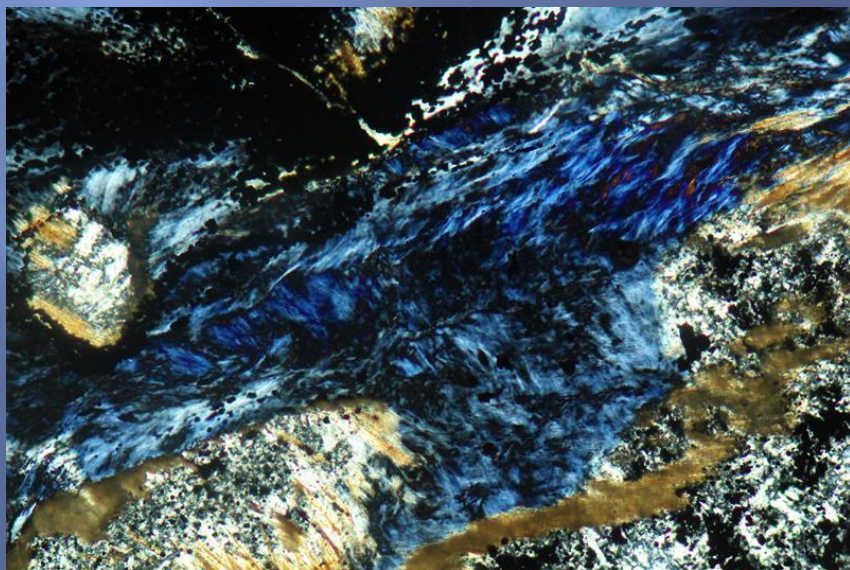
// Nicols ,

[www.alexstrekeisen.it/immagini/meta/prasinite\(monginevro\)\(11\).jpg](http://www.alexstrekeisen.it/immagini/meta/prasinite(monginevro)(11).jpg)



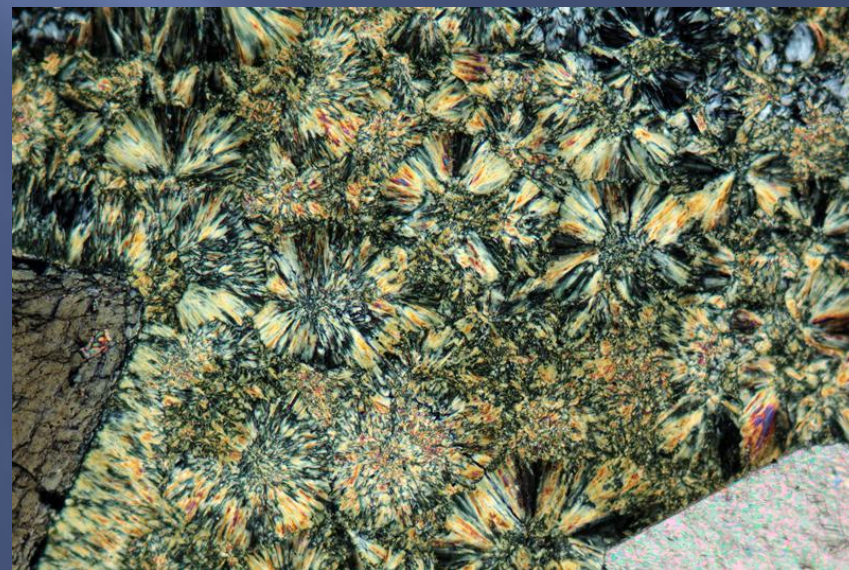
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/cccloritee\(3\).jpg](http://www.alexstrekeisen.it/immagini/meta/cccloritee(3).jpg)



⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/serepentiniteconclorite\(7\).jpg](http://www.alexstrekeisen.it/immagini/meta/serepentiniteconclorite(7).jpg)



⊥ Nicols ,

[www.alexstrekeisen.it/immagini/pluto/clorite0584\(15\).jpg](http://www.alexstrekeisen.it/immagini/pluto/clorite0584(15).jpg)

Σερπεντίνης



//Nicols ,

[www.alexstrekeisen.it/immagini/meta/peridotiteserpentinizzata\(12\).jpg](http://www.alexstrekeisen.it/immagini/meta/peridotiteserpentinizzata(12).jpg)



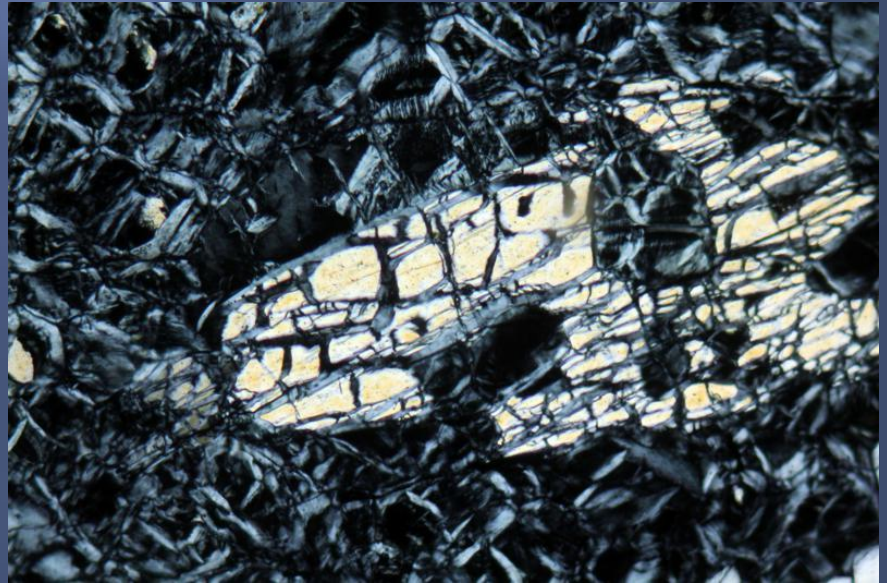
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/peridotiteserpentinizzata\(13\).jpg](http://www.alexstrekeisen.it/immagini/meta/peridotiteserpentinizzata(13).jpg)



⊥ Nicols ,

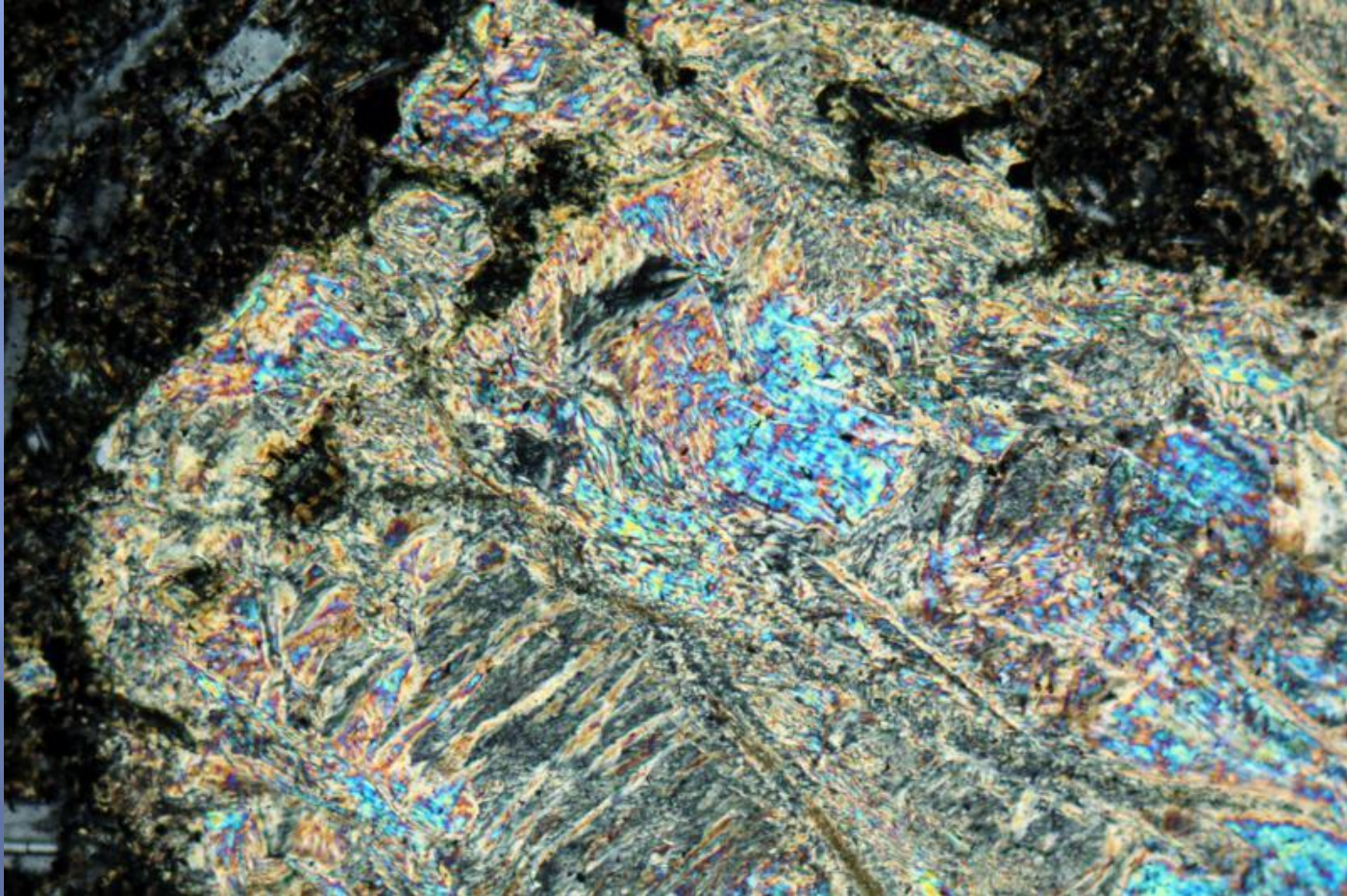
[www.alexstrekeisen.it/immagini/meta/cumuliteserpentinizzata0141\(3\).jpg](http://www.alexstrekeisen.it/immagini/meta/cumuliteserpentinizzata0141(3).jpg)



⊥ Nicols ,

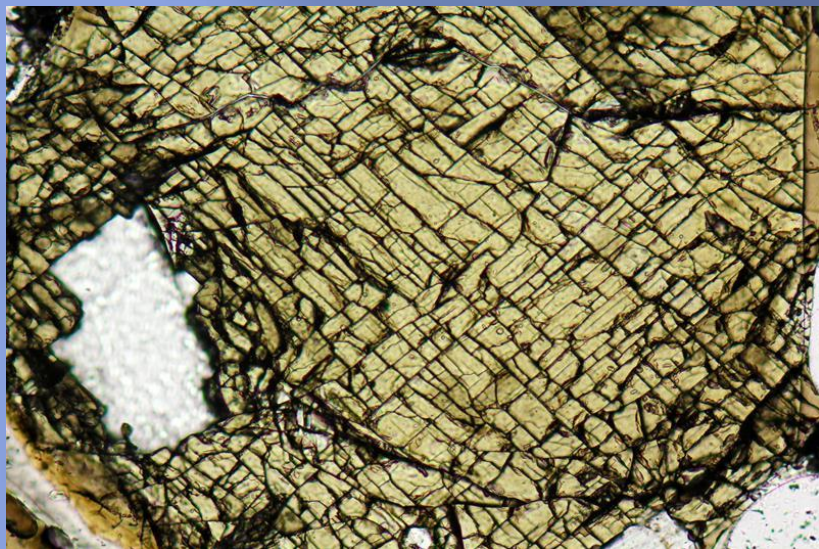
[www.alexstrekeisen.it/immagini/meta/serpentinite2012\(6\).jpg](http://www.alexstrekeisen.it/immagini/meta/serpentinite2012(6).jpg)

Τάλκης



⊥ Nicols ,
[www.alexstrekeisen.it/immagini/vulc/talcopseudomorfosuolivina\(4\).jpg](http://www.alexstrekeisen.it/immagini/vulc/talcopseudomorfosuolivina(4).jpg)

Πυρόξενος



//Nicols ,
[www.alexstrekeisen.it/immagini/vulc/pyroxene2020\(17\).jpg](http://www.alexstrekeisen.it/immagini/vulc/pyroxene2020(17).jpg)



⊥ Nicols ,
[www.alexstrekeisen.it/immagini/vulc/leucititevulsini23\(3\).jpg](http://www.alexstrekeisen.it/immagini/vulc/leucititevulsini23(3).jpg)



⊥ Nicols ,
[www.alexstrekeisen.it/immagini/pluto/ortopirossenite2017\(1\).jpg](http://www.alexstrekeisen.it/immagini/pluto/ortopirossenite2017(1).jpg)



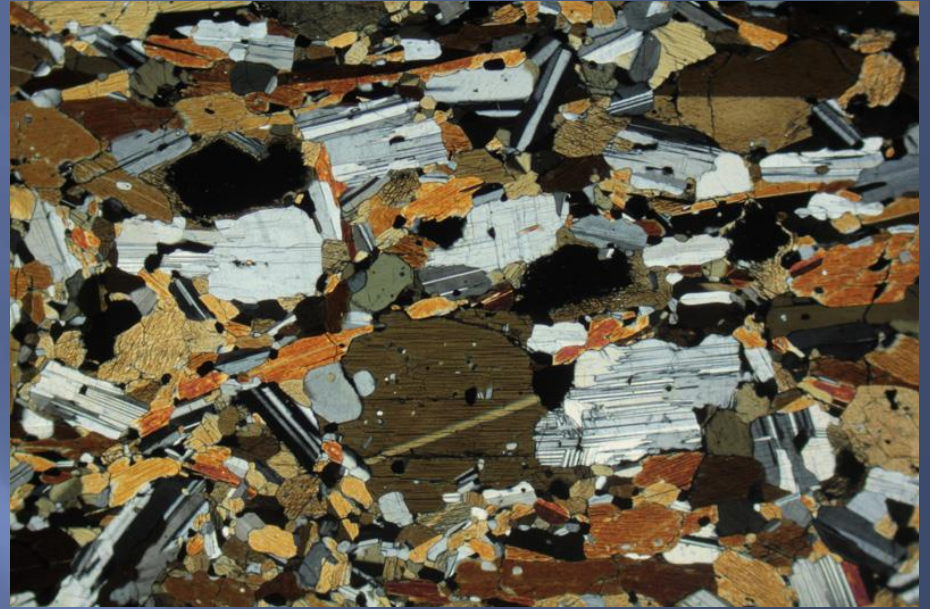
⊥ Nicols ,
[www.alexstrekeisen.it/immagini/vulc/ortopirosseno2012a\(2\).jpg](http://www.alexstrekeisen.it/immagini/vulc/ortopirosseno2012a(2).jpg)

Κεροσίλβη



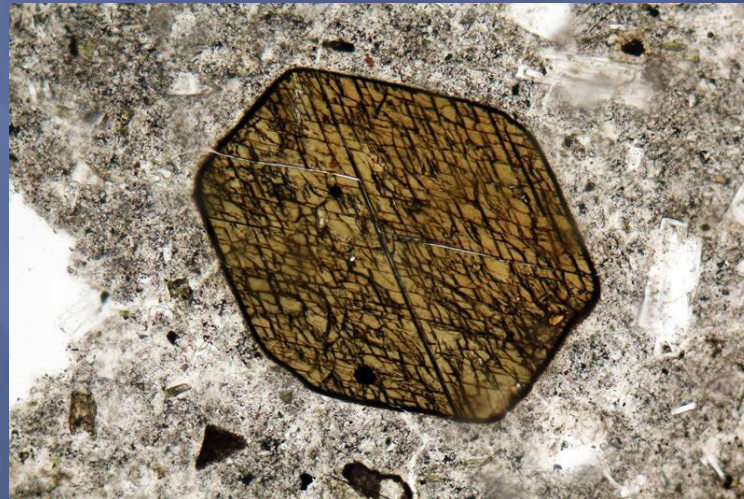
// Nicols ,

[www.alexstrekeisen.it/immagini/meta/micascisto0093\(37\).jpg](http://www.alexstrekeisen.it/immagini/meta/micascisto0093(37).jpg)



⊥ Nicols ,

[www.alexstrekeisen.it/immagini/pluto/gabbrohorneblenda\(3\).jpg](http://www.alexstrekeisen.it/immagini/pluto/gabbrohorneblenda(3).jpg)



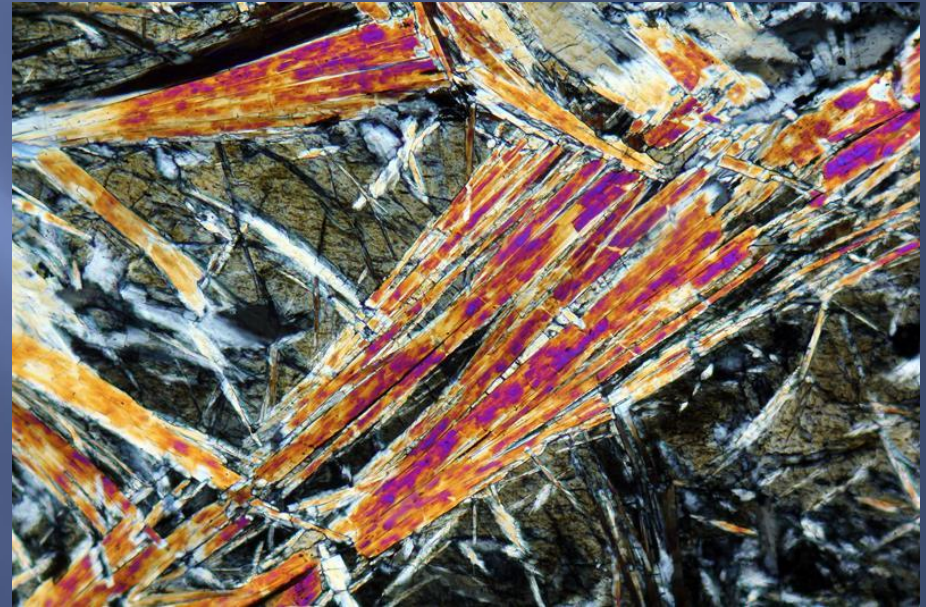
// Nicols ,

[www.alexstrekeisen.it/immagini/vulc/andesiteungheria\(5\).jpg](http://www.alexstrekeisen.it/immagini/vulc/andesiteungheria(5).jpg)

Ακτινόλιθος- Τρεμολίτης

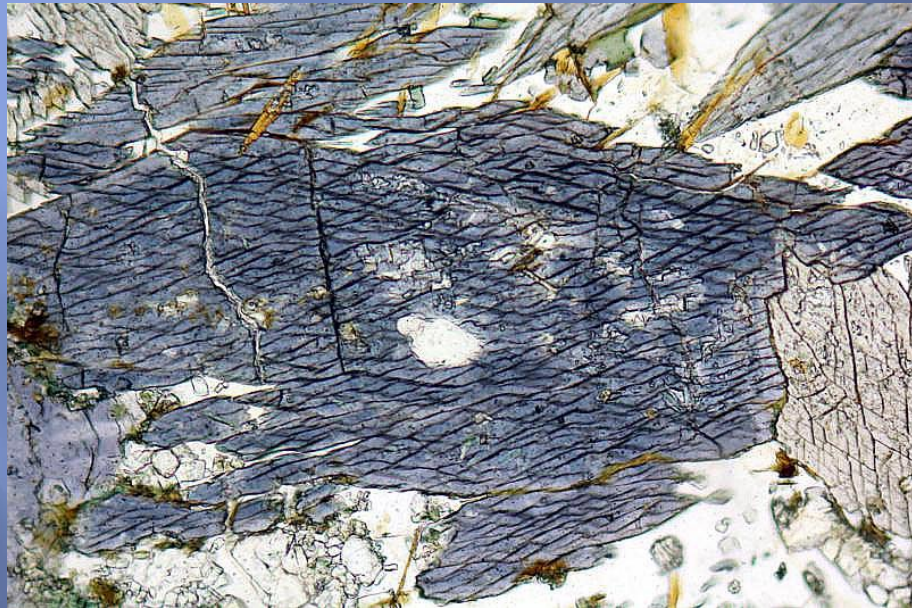


// Nicols ,
[www.alexstrekeisen.it/immagini/meta/tremoliteelba\(15\).jpg](http://www.alexstrekeisen.it/immagini/meta/tremoliteelba(15).jpg)



⊥ Nicols ,
[www.alexstrekeisen.it/immagini/meta/actinolite\(20\).jpg](http://www.alexstrekeisen.it/immagini/meta/actinolite(20).jpg)

Γλαυκοφανής

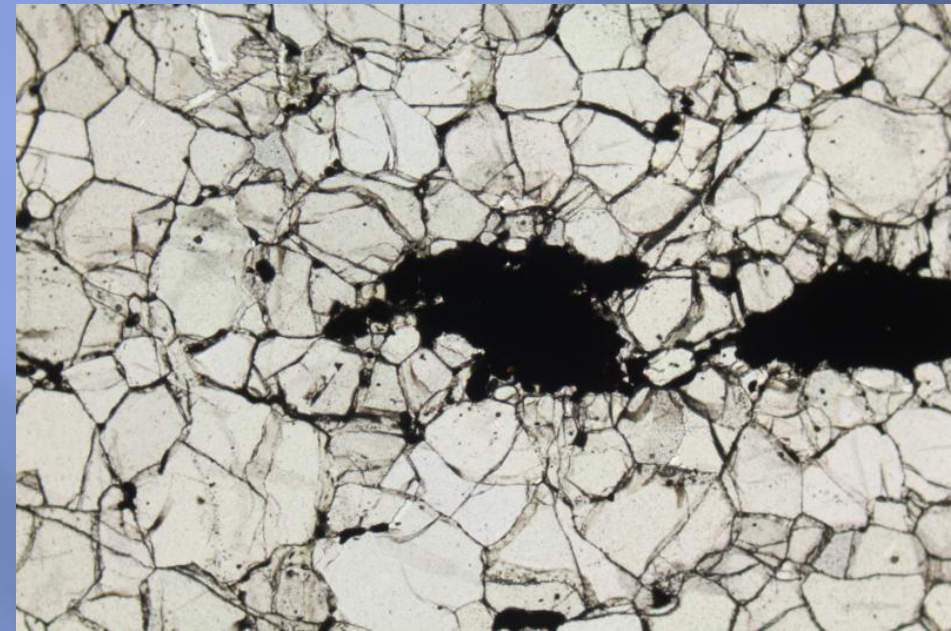


// Nicols ,
[www.alexstrekeisen.it/immagini/meta/glaucofanemilos\(25\).jpg](http://www.alexstrekeisen.it/immagini/meta/glaucofanemilos(25).jpg)



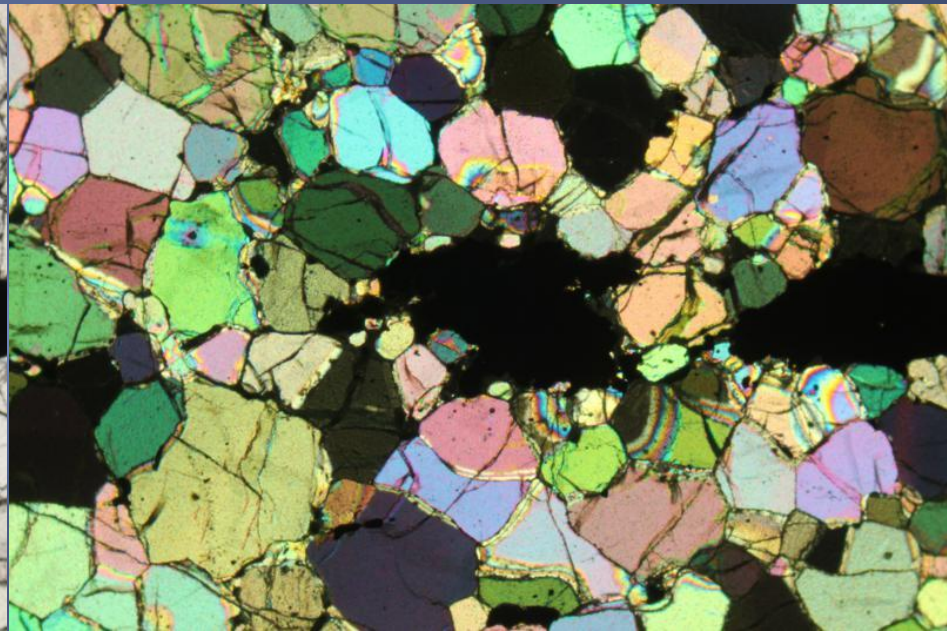
// Nicols ,
[www.alexstrekeisen.it/immagini/meta/glaucofane1206\(12\).jpg](http://www.alexstrekeisen.it/immagini/meta/glaucofane1206(12).jpg)

Ολιβίνης



// Nicols ,

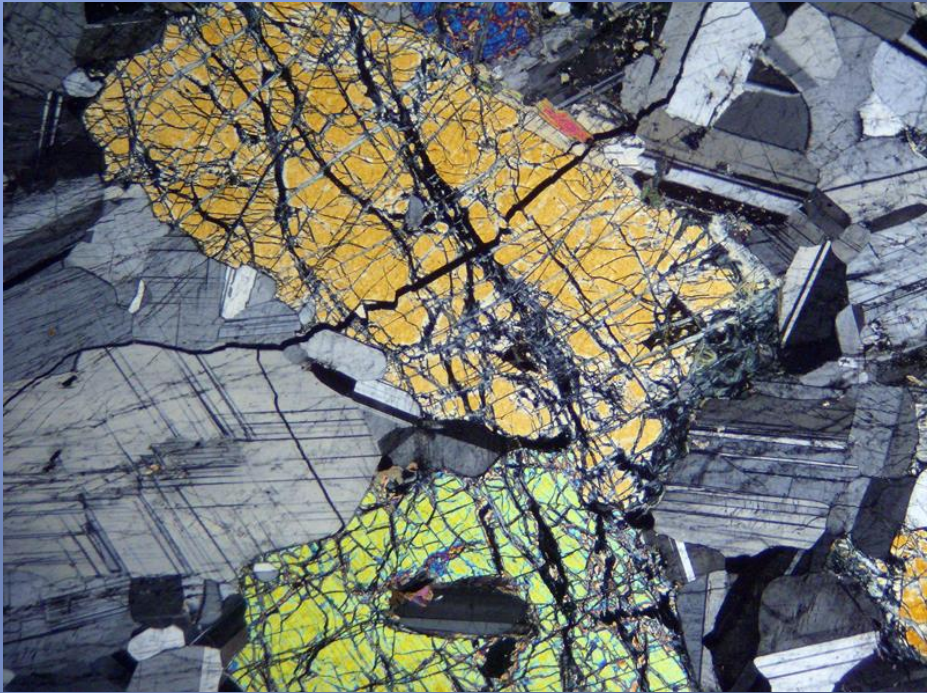
[http://www.alexstrekeisen.it/immagini/pluto/dunite\(4\).jpg](http://www.alexstrekeisen.it/immagini/pluto/dunite(4).jpg)



⊥ Nicols ,

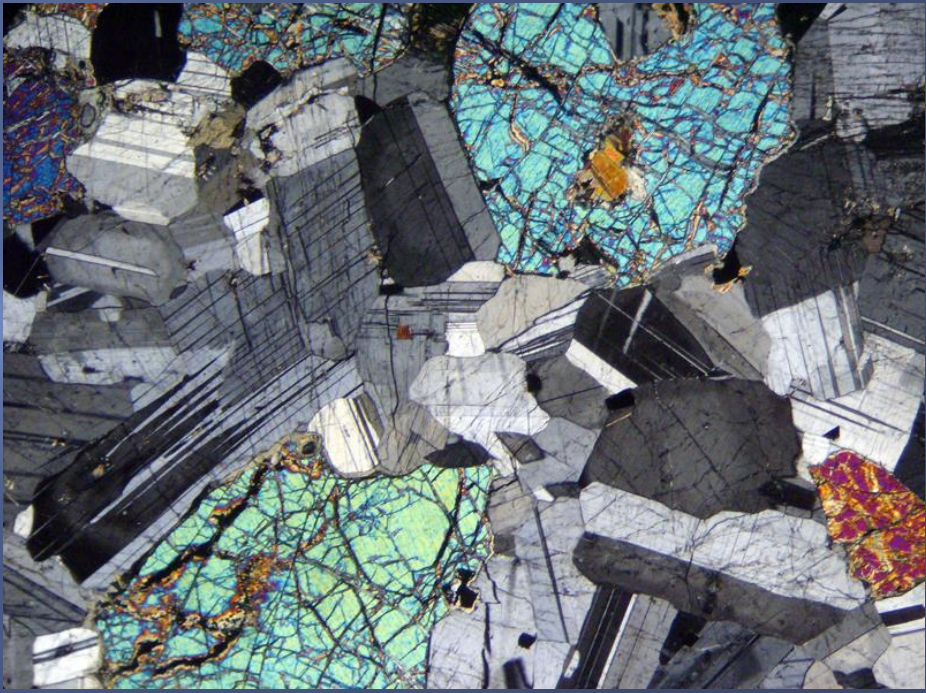
[http://www.alexstrekeisen.it/immagini/pluto/dunite\(5\).jpg](http://www.alexstrekeisen.it/immagini/pluto/dunite(5).jpg)

Ολιβίνης



⊥ Nicols ,

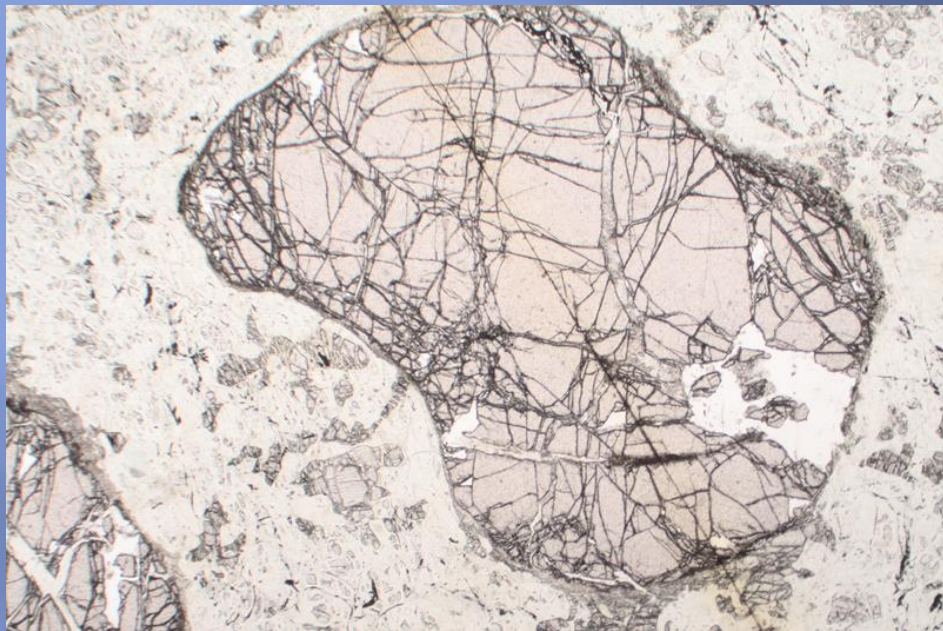
[http://www.alexstrekeisen.it/immagini/pluto/troctolite\(23\).jpg](http://www.alexstrekeisen.it/immagini/pluto/troctolite(23).jpg)



⊥ Nicols ,

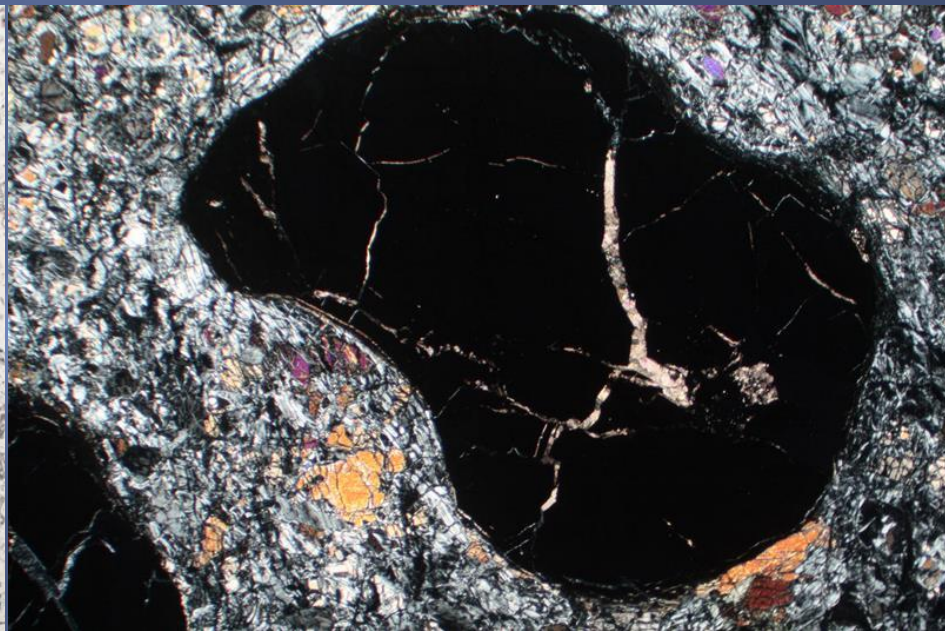
[http://www.alexstrekeisen.it/immagini/pluto/troctolite\(11\).jpg](http://www.alexstrekeisen.it/immagini/pluto/troctolite(11).jpg)

Γρανάτης



// Nicols ,

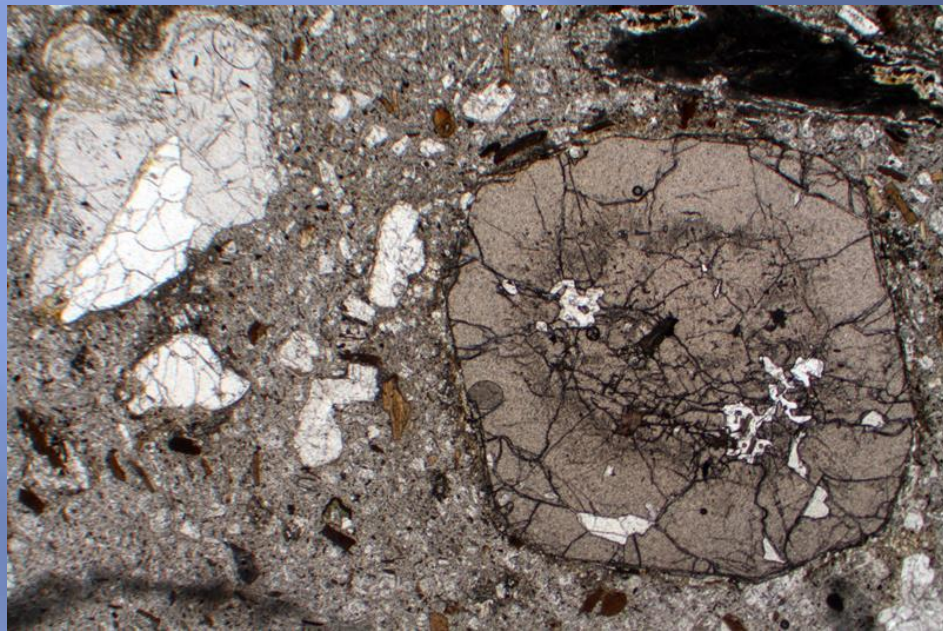
[http://www.alexstrekeisen.it/immagini/pluto/lherzolite\(grt\)\(23\).jpg](http://www.alexstrekeisen.it/immagini/pluto/lherzolite(grt)(23).jpg)



⊥ Nicols ,

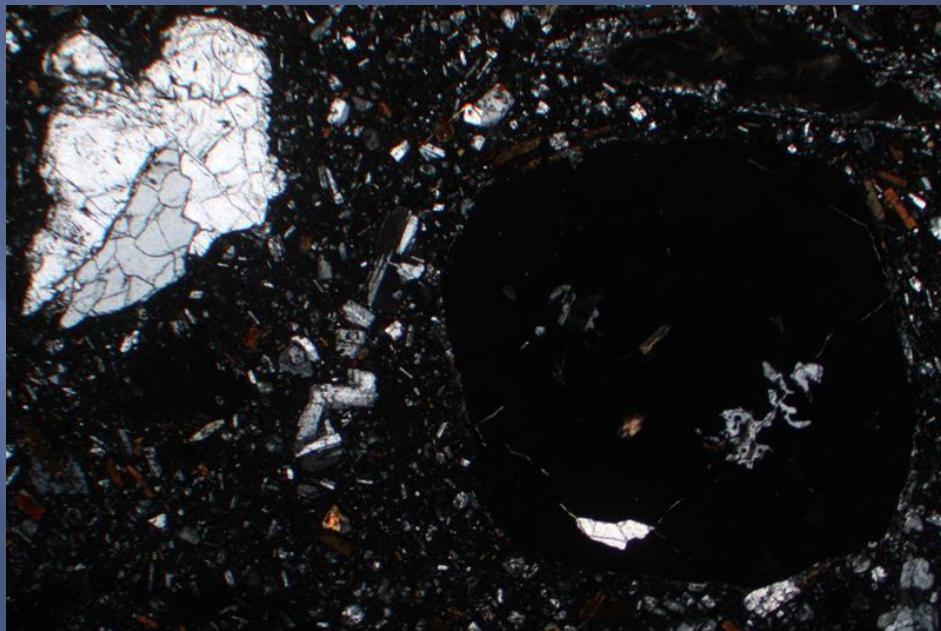
[http://www.alexstrekeisen.it/immagini/pluto/lherzolite\(grt\)\(24\).jpg](http://www.alexstrekeisen.it/immagini/pluto/lherzolite(grt)(24).jpg)

Γρανάτης



// Nicols ,

[http://www.alexstrekeisen.it/immagini/vulc/niar\(8\).jpg](http://www.alexstrekeisen.it/immagini/vulc/niar(8).jpg)



⊥ Nicols ,

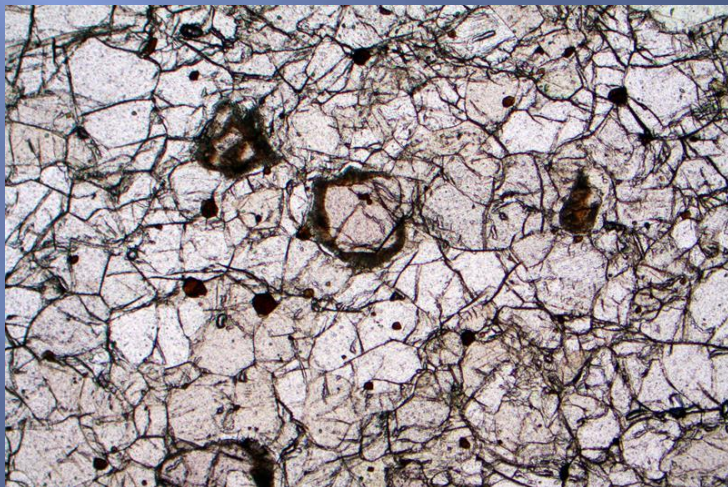
[http://www.alexstrekeisen.it/immagini/vulc/niar\(9\).jpg](http://www.alexstrekeisen.it/immagini/vulc/niar(9).jpg)

Γρανάτης



// Nicols ,

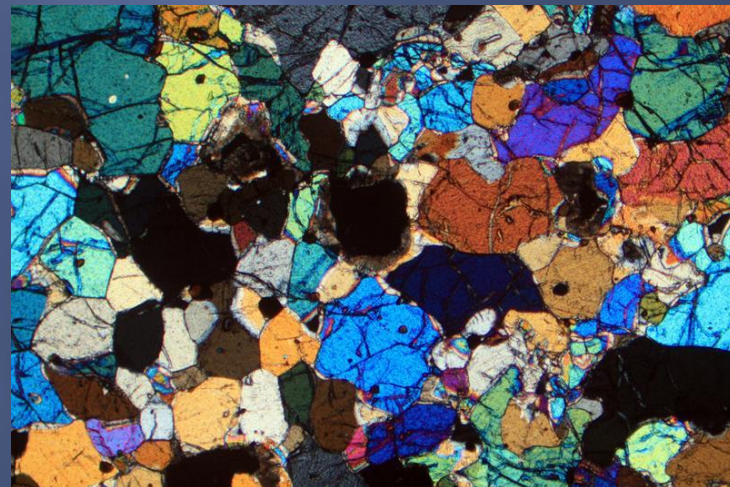
[http://www.alexstrekeisen.it/immagini/meta/micascisto0093\(49\).jpg](http://www.alexstrekeisen.it/immagini/meta/micascisto0093(49).jpg)



// Nicols ,

[http://www.alexstrekeisen.it/immagini/pluto/lherzolite\(grt\)\(1\).jpg](http://www.alexstrekeisen.it/immagini/pluto/lherzolite(grt)(1).jpg)

[http://www.alexstrekeisen.it/immagini/vulc/niar\(9\).jpg](http://www.alexstrekeisen.it/immagini/vulc/niar(9).jpg)



⊥ Nicols ,

[http://www.alexstrekeisen.it/immagini/pluto/lherzolite\(grt\)\(1\).jpg](http://www.alexstrekeisen.it/immagini/pluto/lherzolite(grt)(1).jpg)

[http://www.alexstrekeisen.it/immagini/vulc/niar\(9\).jpg](http://www.alexstrekeisen.it/immagini/vulc/niar(9).jpg)

Αλουμινοπυριτικά: Ανδαλουσίτης



// Nicols ,

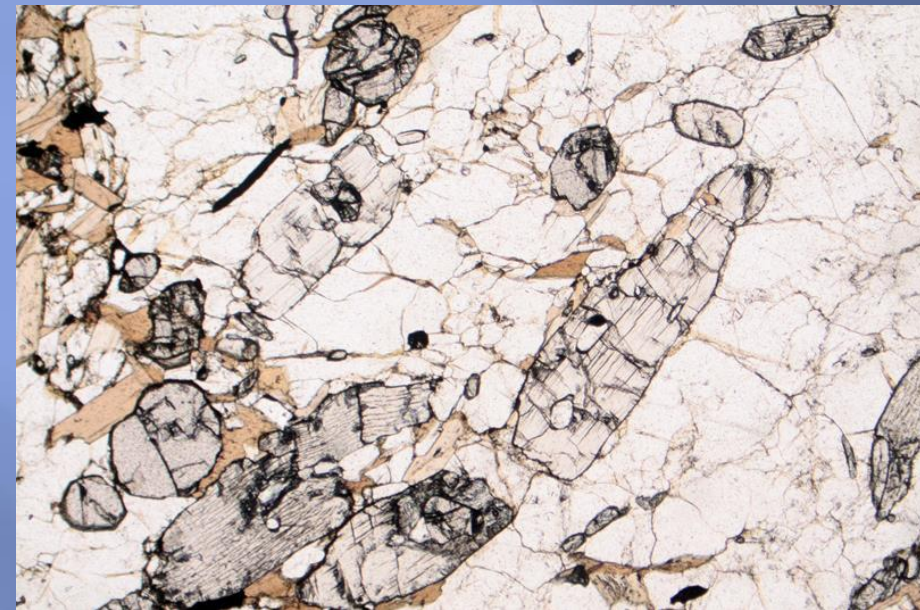
[http://www.alexstrekeisen.it/immagini/meta/micascisto0093\(49\).jpg](http://www.alexstrekeisen.it/immagini/meta/micascisto0093(49).jpg)



⊥ Nicols ,

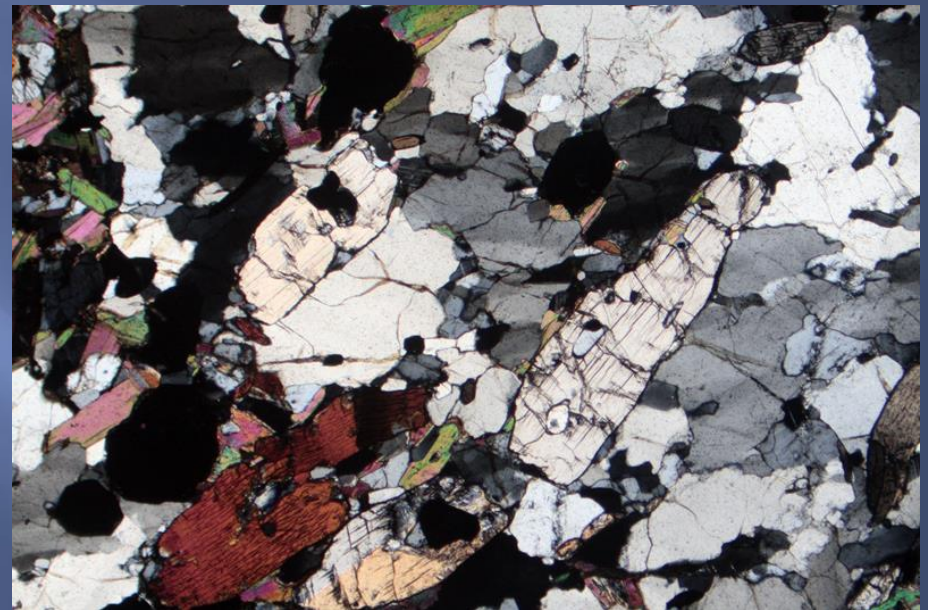
[http://www.alexstrekeisen.it/immagini/meta/skiddaw2452\(14\).jpg](http://www.alexstrekeisen.it/immagini/meta/skiddaw2452(14).jpg)

Αλουμινοπυριτικά: Κρανίτης



// Nicols ,

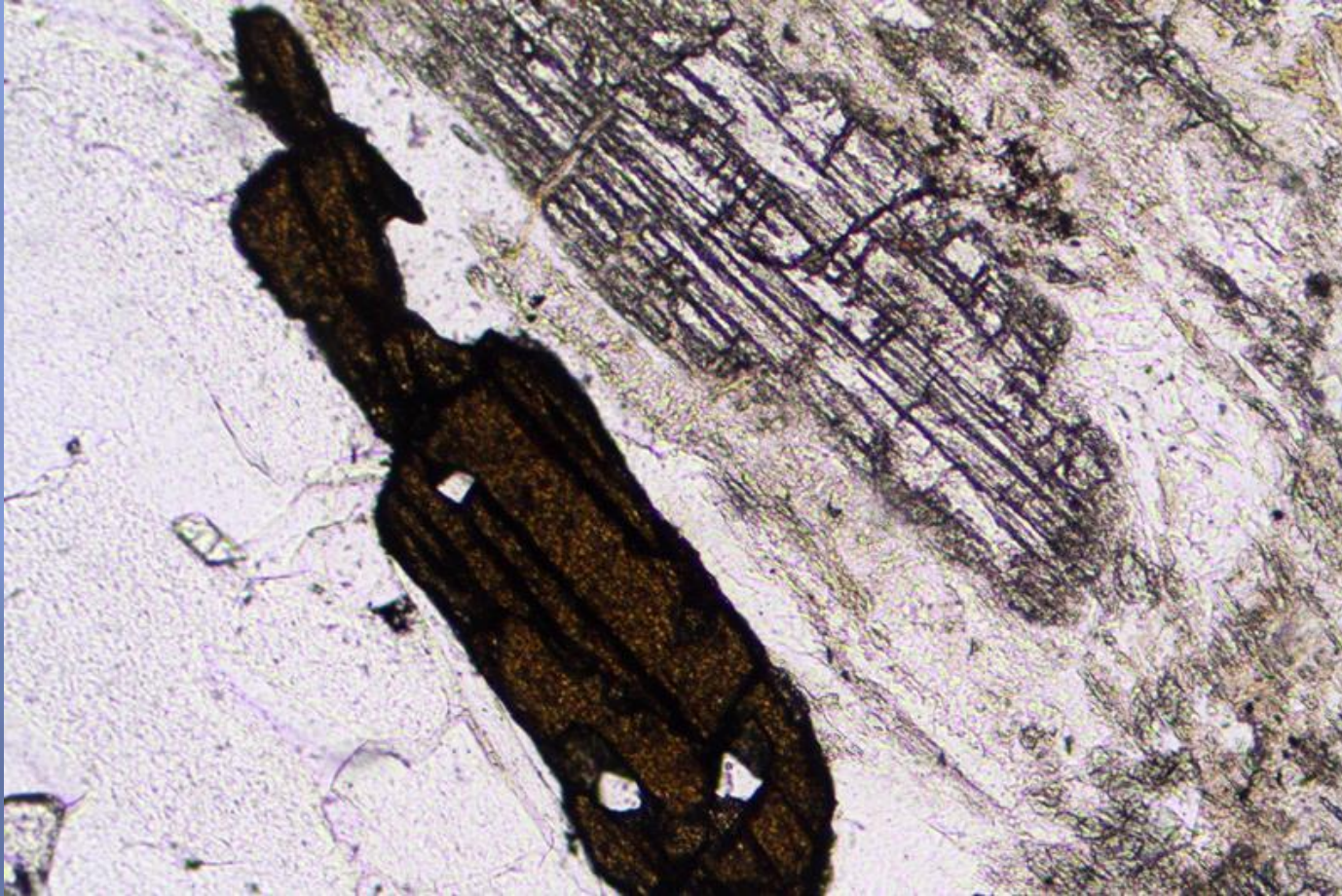
[http://www.alexstrekeisen.it/immagini/meta/cianite0162\(6\).jpg](http://www.alexstrekeisen.it/immagini/meta/cianite0162(6).jpg)



⊥ Nicols ,

[http://www.alexstrekeisen.it/immagini/meta/cianite0162\(7\).jpg](http://www.alexstrekeisen.it/immagini/meta/cianite0162(7).jpg)

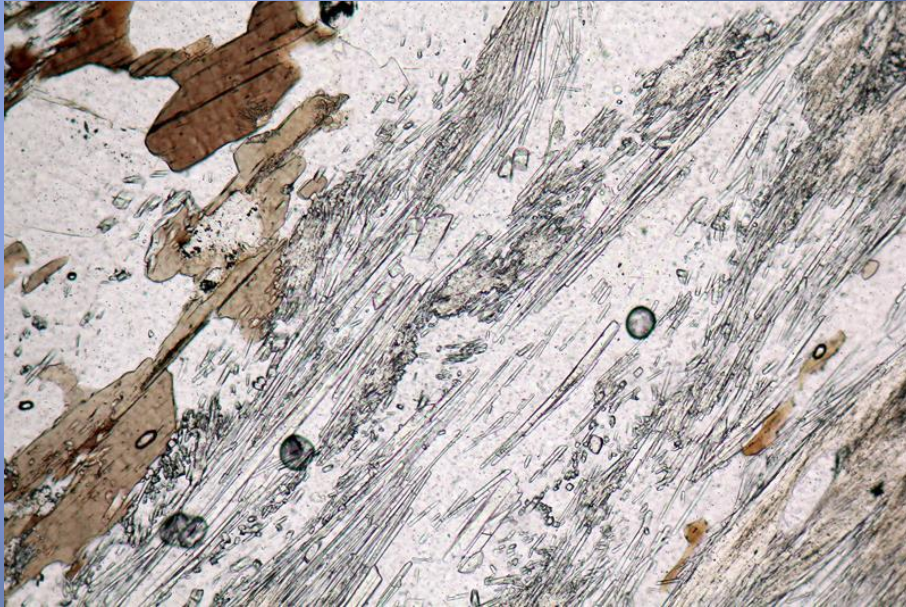
Αλουμινοπυριτικά: Κρανίτης



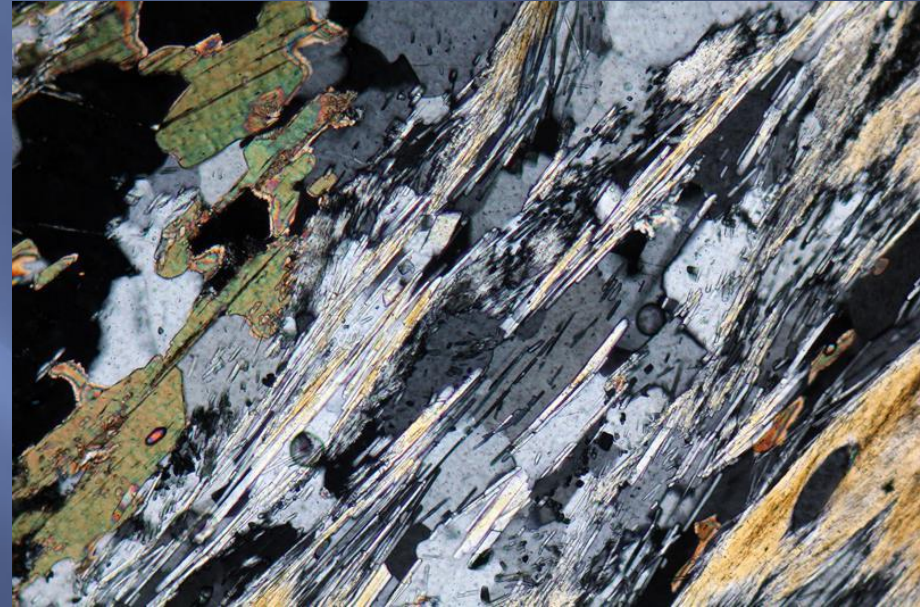
// Nicols ,

[http://www.alexstrekeisen.it/immagini/meta/rutilo2016\(10\).jpg](http://www.alexstrekeisen.it/immagini/meta/rutilo2016(10).jpg)

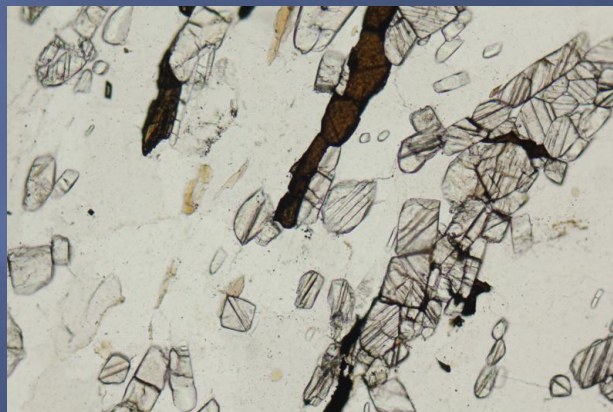
Αλουμινοπυριτικά: Σιλλιμανίτης



// Nicols ,
[trekeisen.it/immagini/meta/fibrolite1682\(16\).jpg](http://www.alexstrekeisen.it/immagini/meta/fibrolite1682(16).jpg)

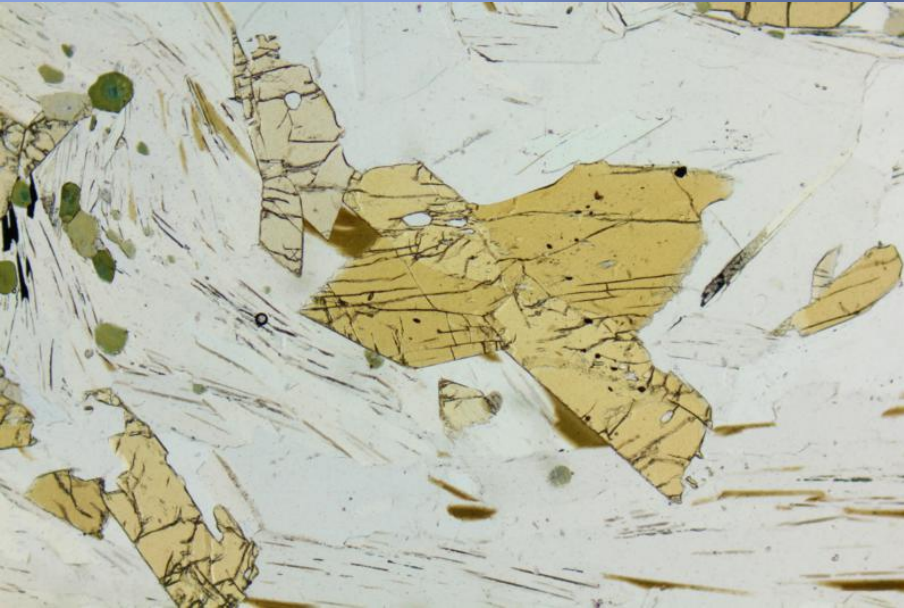


⊥ Nicols ,
[http://www.alexstrekeisen.it/immagini/meta/fibrolite1682\(17\).jpg](http://www.alexstrekeisen.it/immagini/meta/fibrolite1682(17).jpg)



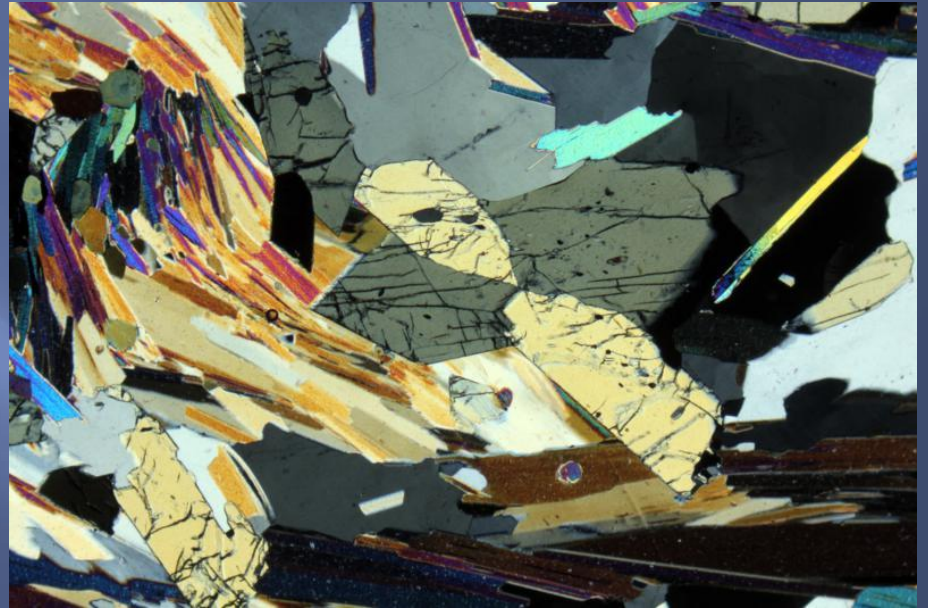
// Nicols ,
[http://www.alexstrekeisen.it/immagini/meta/sillimanitegranulite\(12\).jpg](http://www.alexstrekeisen.it/immagini/meta/sillimanitegranulite(12).jpg)

Σταυρόλιθος



// Nicols ,

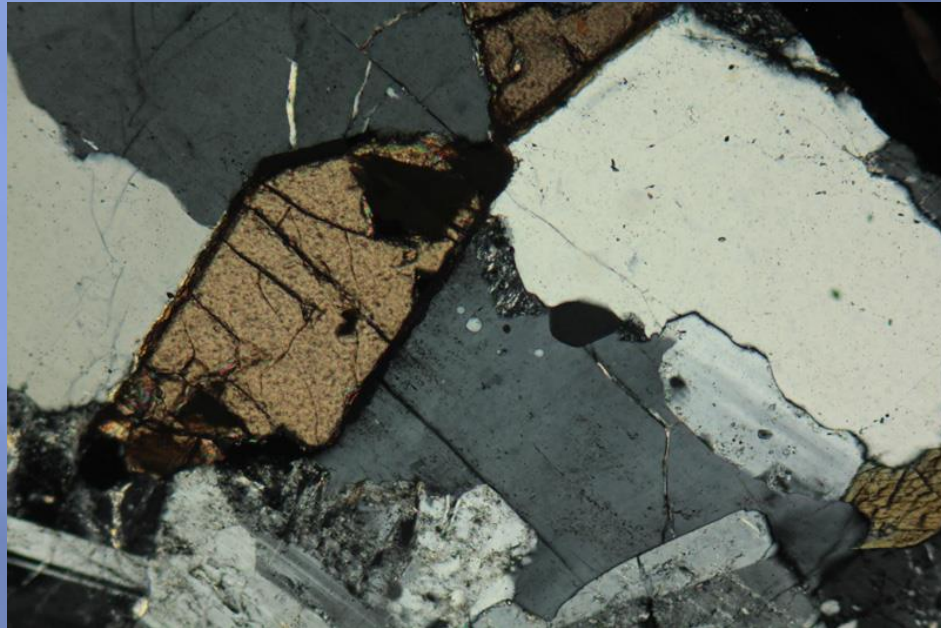
[www.alexstrekeisen.it/immagini/meta/stauroliteposaadaasinaraa\(9\).jpg](http://www.alexstrekeisen.it/immagini/meta/stauroliteposaadaasinaraa(9).jpg)



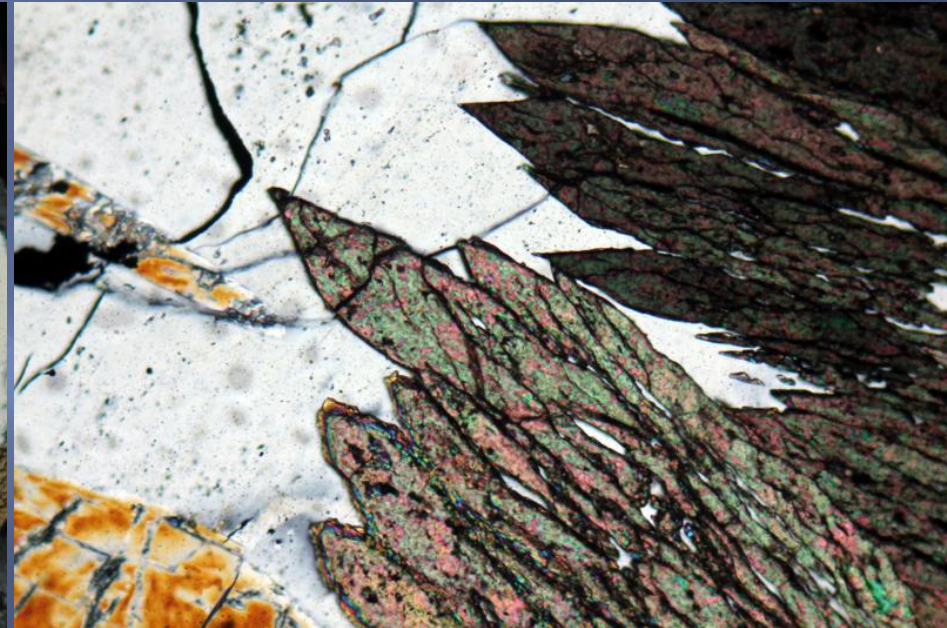
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/stauroliteposaadaasinaraa\(10\).jpg](http://www.alexstrekeisen.it/immagini/meta/stauroliteposaadaasinaraa(10).jpg)

Τιτανίτης

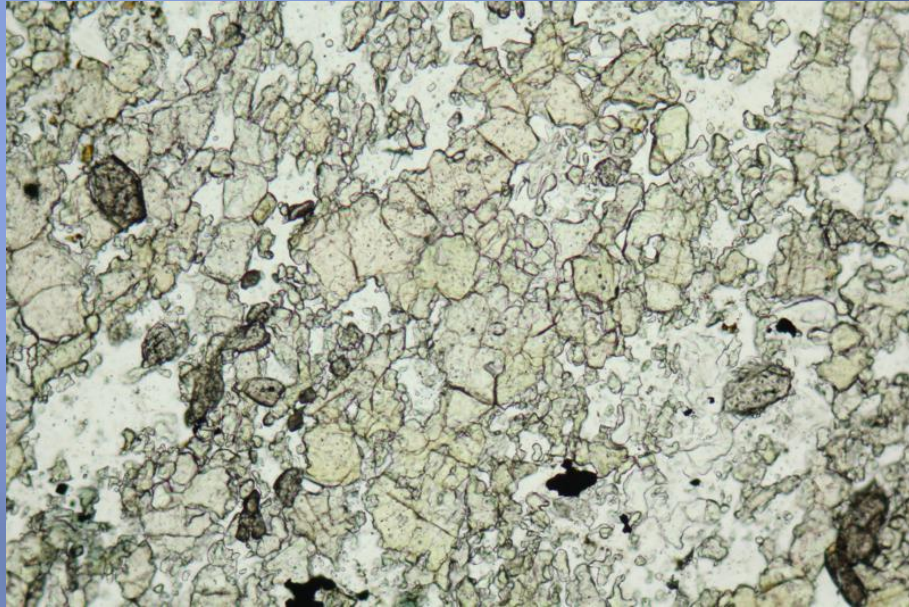


⊥ Nicols ,
[http://www.alexstrekeisen.it/immagini/pluto/titaanite\(4\).jpg](http://www.alexstrekeisen.it/immagini/pluto/titaanite(4).jpg)

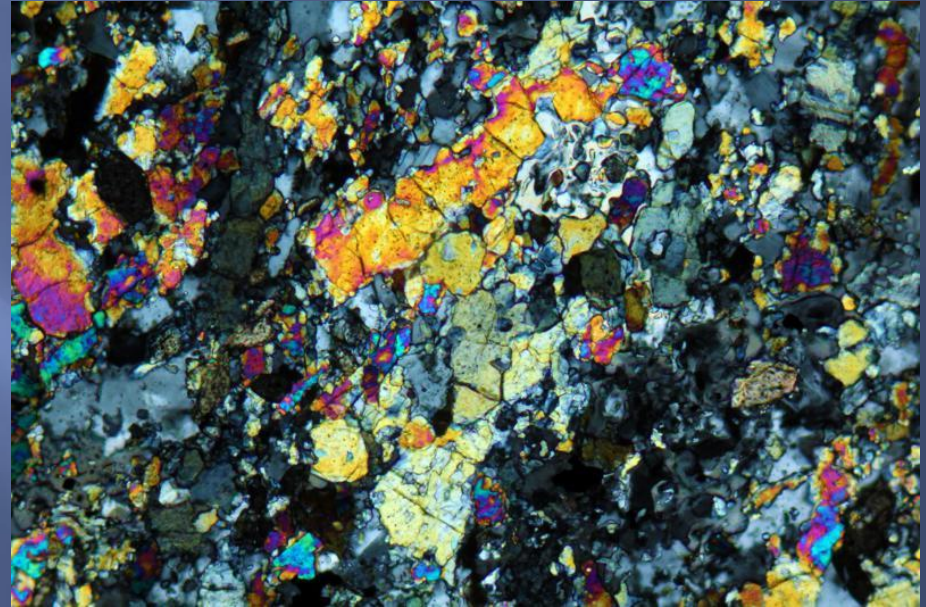


⊥ Nicols ,
[http://www.alexstrekeisen.it/immagini/pluto/titaniteeee\(3\).jpg](http://www.alexstrekeisen.it/immagini/pluto/titaniteeee(3).jpg)

Επίδοτο

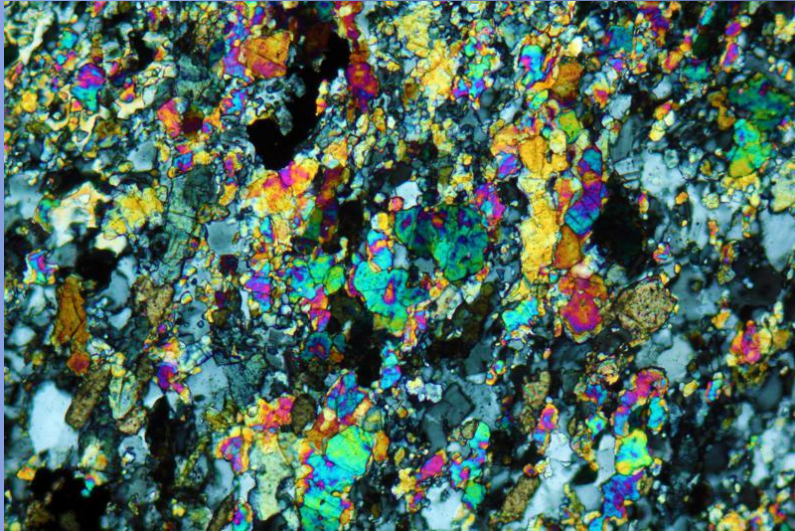


// Nicols ,
[www.alexstrekeisen.it/immagini/meta/epidotii\(7\).jpg](http://www.alexstrekeisen.it/immagini/meta/epidotii(7).jpg)



⊥ Nicols ,
[www.alexstrekeisen.it/immagini/meta/epidotii\(8\).jpg](http://www.alexstrekeisen.it/immagini/meta/epidotii(8).jpg)

Επίδοτο, ζωισίτης



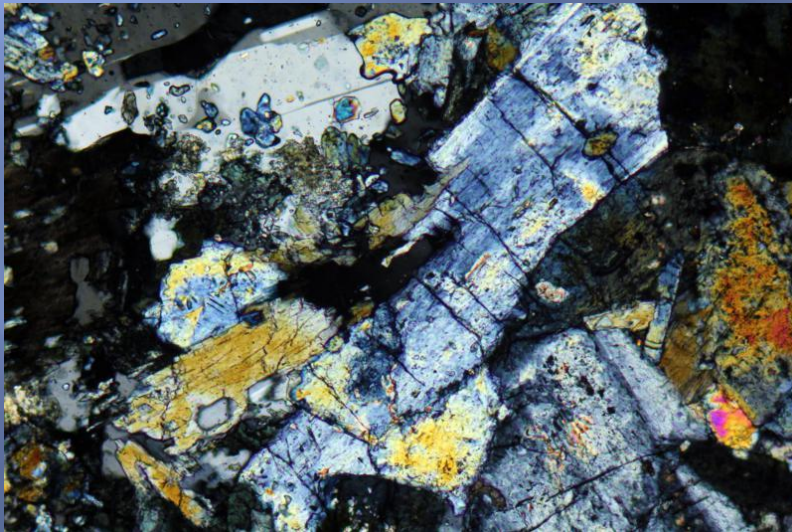
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/epidotii\(5\).jpg](http://www.alexstrekeisen.it/immagini/meta/epidotii(5).jpg)



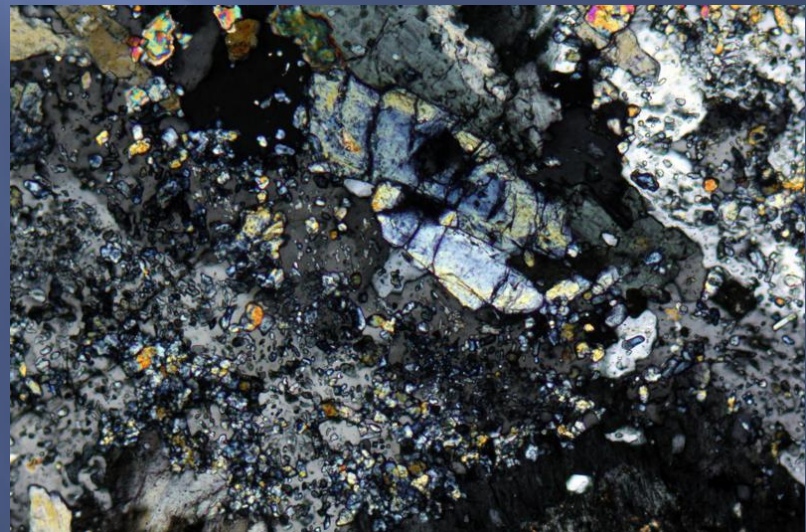
// Nicols ,

[http://www.alexstrekeisen.it/immagini/pluto/titaniteeee\(3\).jpg](http://www.alexstrekeisen.it/immagini/pluto/titaniteeee(3).jpg)



⊥ Nicols ,

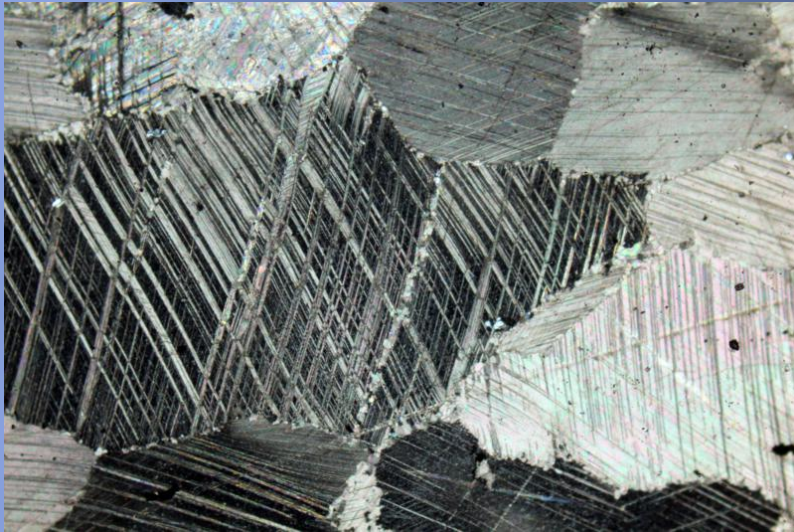
[www.alexstrekeisen.it/immagini/meta/zoisite2012\(4\).jpg](http://www.alexstrekeisen.it/immagini/meta/zoisite2012(4).jpg)



⊥ Nicols ,

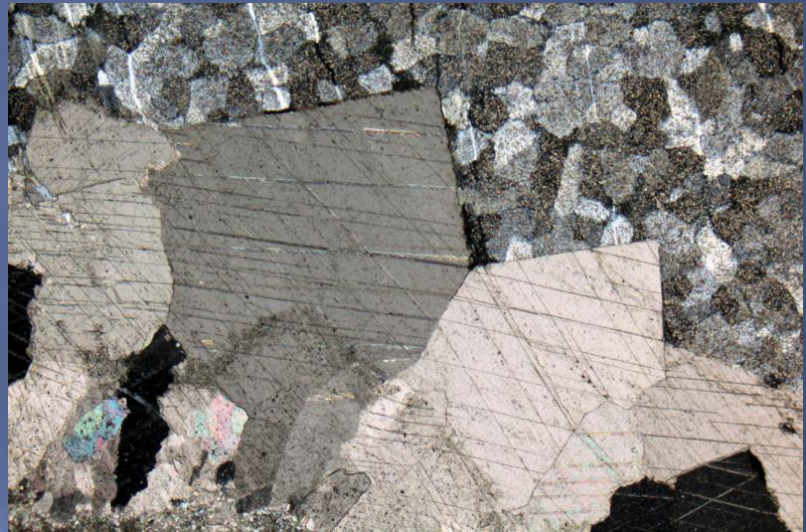
[www.alexstrekeisen.it/immagini/meta/zoisite2012\(6\).jpg](http://www.alexstrekeisen.it/immagini/meta/zoisite2012(6).jpg)

Ασβεστίτης



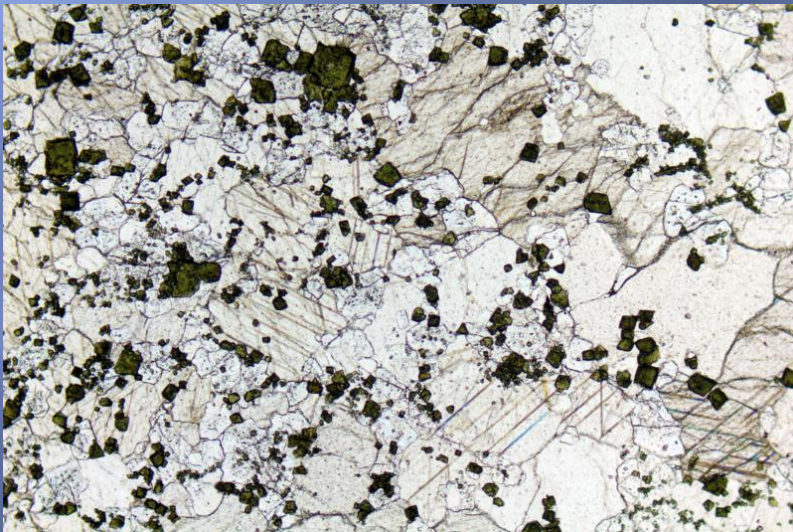
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/marmo2012a\(3\).jpg](http://www.alexstrekeisen.it/immagini/meta/marmo2012a(3).jpg)



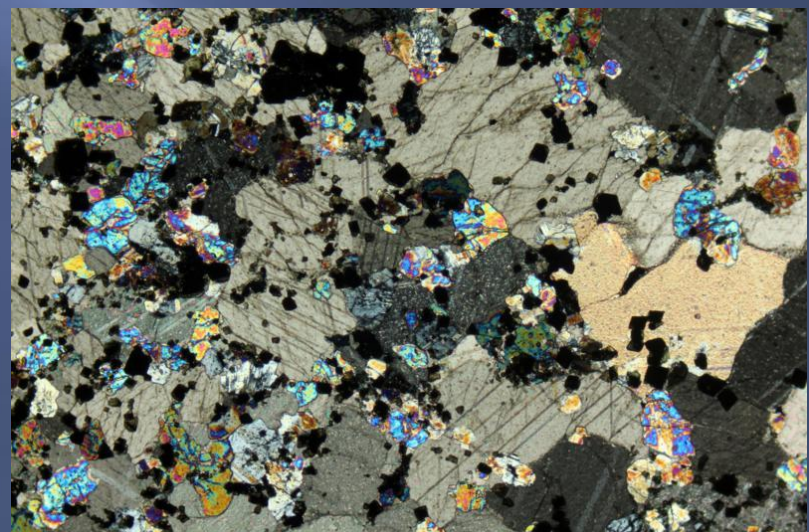
⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/calcite2012\(11\).jpg](http://www.alexstrekeisen.it/immagini/meta/calcite2012(11).jpg)



// Nicols ,

[www.alexstrekeisen.it/immagini/meta/marmoerciniteconchrodite\(3\).jpg](http://www.alexstrekeisen.it/immagini/meta/marmoerciniteconchrodite(3).jpg)



⊥ Nicols ,

[www.alexstrekeisen.it/immagini/meta/marmoerciniteconchrodite\(4\).jpg](http://www.alexstrekeisen.it/immagini/meta/marmoerciniteconchrodite(4).jpg)