

Mineralogy And Optical Mineralogy Gunter Dyar

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Explore the fascinating world of minerals with Gunter Dyar's comprehensive guide to Mineralogy and Optical Mineralogy. This essential resource delves into the fundamental principles of mineral identification and characterization, providing clear explanations of optical properties crucial for understanding various mineral types. Ideal for students and professionals in geology and earth sciences, it illuminates the complexities of mineral structures and their optical behavior.

We provide downloadable materials suitable for both online and offline study.

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Optical Mineralogy Pt.1- Plane & Cross Polarized Light, Birefringence, Pleochroism, etc. | GEO GIRL - Optical Mineralogy Pt.1- Plane & Cross Polarized Light, Birefringence, Pleochroism, etc. | GEO GIRL by GEO GIRL 46,642 views 2 years ago 27 minutes - Light slows down when traveling through thin sections, this is called retardation. The incident ray of light goes through one ...

light traveling through minerals

refractive index (R.I.)

plane & cross polarized light

isotropic vs. anisotropic minerals

birefringence & interference colors

orders of interference colors

accessory plates

extinction

extinction angles

length fast vs. length slow minerals

pleochroism

mineral identification chart

upcoming videos!

Optical Mineralogy Pt.2- Optical Indicatrix, Uniaxial vs Biaxial, Interference Figures | GEO GIRL - Optical Mineralogy Pt.2- Optical Indicatrix, Uniaxial vs Biaxial, Interference Figures | GEO GIRL by GEO GIRL 22,701 views 2 years ago 31 minutes - Ever get to the optical indicatrix part of **optical mineralogy**, and just close the book because it made no sense? Well this video ...

Review & what this video will cover

... crystal system affects **optical**, properties of **minerals**, ...

Intro to optical indicatrix

The uniaxial optical indicatrix

Uniaxial optic axis

The biaxial indicatrix and optic axes

Biaxial optic angle and optic sign

How to apply this to minerals under thin section?

Bertrand lens & condensing lens

Uniaxial interference figures

Uniaxial flash figures

How to determine optic sign of uniaxial minerals

Biaxial interference figures

Biaxial optic angle or 2V angle

Acute bisectrix figure & obtuse bisectrix figures

Biaxial optic sign

Review (mineral identification chart)

Upcoming content (& NEW PLAYLIST!)

Bloopers!

Earth Optics Video 4: Uniaxial Minerals - Earth Optics Video 4: Uniaxial Minerals by Earth Optics 45,760 views 8 years ago 5 minutes, 34 seconds - In this video, I go through examples where I find a uniaxial interference figure and using it to determine optic sign.

Step 1 - Find and center your grain and switch to XPL

Switch to the highest magnification and focus

Insert the Bertrand Lens

Note the interference colors in all four Quadrant

Insert the accessory plate.

Observe the inference color changes

Introduction to Optical Mineralogy - Introduction to Optical Mineralogy by Jing Niu 108,483 views 11 years ago 10 minutes, 16 seconds - JING'S SENIOR YEAR THESIS Introduction to **Mineralogy**, Science Education Video Songs by local musicians: Reed Benjamin, ...

Birefringent

Polarizer

Common Polarisers

Petrographic Microscope

Upper Polarizer

Retardation

Seismic Waves

S Waves

Shear Waves

Earth Optics Video 6: Biaxial Minerals - Earth Optics Video 6: Biaxial Minerals by Earth Optics 26,560 views 8 years ago 5 minutes, 6 seconds - In this video, I go through examples of biaxial interference figures and show examples where I determine the optic sign and 2V ...

Introduction

Interference Figure

Interference Colors

Comparison

Determine 2V Angle

Example

K-feldspar tutorial Optical mineralogy - K-feldspar tutorial Optical mineralogy by Matt Kohn 12,564 views 2 years ago 3 minutes, 2 seconds - Several videos of K-feldspar in thin section, showing typical textures and **optical**, characteristics. Supported by Boise State ...

Typical microcline with tartan twinning

More tartan twinning

Slightly perthitic

Strongly perthitic, clay alteration

Beautiful perthite, clay alteration

Sanidine

Kyanite tutorial Optical mineralogy - Kyanite tutorial Optical mineralogy by Matt Kohn 3,632 views 2 years ago 2 minutes, 47 seconds - Several videos of kyanite in thin section, showing typical textures and **optical**, characteristics. Supported by Boise State University ...

Well-developed cleavage and cross-parting

In eclogite, weaker cleavage and parting

Numerous crystals in different orientations

Slightly pleochroic yellow, abundant cleavages

Deformed grain

Adjacent to fibrolitic sillimanite

Quick Mineral Identification - Quick Mineral Identification by blunosr 1,770,104 views 13 years ago 8 minutes, 27 seconds - Quick identifying properties of several **minerals**,.

Apatite

Bauxite

Calcite

Chalcopyrite

Chromite

Cinnabar
Native Copper
Galena
Garnet
Graphite
Hematite
Limonite
Magnetite
Molybdenite
Olivine
Pyrrhotite
Quartz

What Is a Mineral? Smithsonian Video - What Is a Mineral? Smithsonian Video by Smithsonian's National Museum of Natural History 52,064 views 1 year ago 5 minutes, 9 seconds - Did you know that **minerals**, are all around us? **Minerals**, are the building blocks that make up rocks! They are the ores that we ...

Mineral Identification - Mineral Identification by Mike Sammartano 345,062 views 4 years ago 8 minutes, 40 seconds - In this video, we examine all of the tests that can be used to help identify **mineral**, samples. Download the notes sheet here: ...

Introduction
Color
Streak
Luster
Breakage
Hardness
Other characteristics
Summary

What is Pyroxene? A Geologist Explains! - What is Pyroxene? A Geologist Explains! by Geology Johnson 3,999 views 1 year ago 5 minutes, 44 seconds - pyroxene #crystals What is pyroxene? Geologist Dr Brooke Johnson explains with the help of some expert colleagues. Learn how ...

Optical Properties of Rock forming Minerals under Microscope | Thin Section | Calcite - Optical Properties of Rock forming Minerals under Microscope | Thin Section | Calcite by Mentor Dada 9,584 views 2 years ago 3 minutes, 27 seconds - This video contains the description of Calcite's **optical**, properties in thin section.

Plagioclase tutorial optical mineralogy - Plagioclase tutorial optical mineralogy by Matt Kohn 11,487 views 2 years ago 5 minutes, 2 seconds - Several videos of plagioclase in thin section, showing typical textures and **optical**, characteristics. Supported by Boise State ...

Two grains, one with twins, one without
Single zoned and twinned grain
Single grain both twinned and untwinned
An untwinned grain with twinned grains around it
Strongly zoned (and twinned)
Typical plagioclase in a granite
Bizarre metamorphosed amygdule
Volcanic interlocking grains
With melt inclusions

Albite and pericline twins

Understanding Minerals - Understanding Minerals by Mike Sammartano 2,075,781 views 11 years ago 10 minutes, 22 seconds - In this video, we explore what exactly **minerals**, are, and what must be true for a substance to be classified as a **mineral**,. Additional ...

What are Minerals
Criteria for Minerals
Physical Properties

Thin section 2 - Thin section 2 by GeoHub Liverpool 32,303 views 3 years ago 4 minutes, 53 seconds - This is a thin section of a rock made of quartz, feldspar biotite mica and muscovite mica. The properties of the main rock-forming ...

Pleochroism

Biotite Mica

Other Rock Forming Minerals

Summary

Optical Properties of Rock forming Minerals under Microscope | Thin Section | Biotite | - Optical Properties of Rock forming Minerals under Microscope | Thin Section | Biotite | by Mentor Dada 8,310 views 2 years ago 2 minutes, 28 seconds - This video contains description of Biotite's **optical**, properties in thin section.

Earth Optics Video 2: Cross Polarized Light - Earth Optics Video 2: Cross Polarized Light by Earth Optics 47,747 views 8 years ago 5 minutes, 16 seconds - In this video, I introduce techniques used in cross polarized light. Topics include: birefringence & extinction angles.

ISOTROPIC

Calculating birefringence in a thin section

Optical Mineralogy | Uniaxial Indicatrix | Geology | GATE GG | UPSC | IIT JAM | CSIR NET - Optical Mineralogy | Uniaxial Indicatrix | Geology | GATE GG | UPSC | IIT JAM | CSIR NET by Geo Mind 22,551 views 3 years ago 29 minutes - Mineralogy, **#Geology**, **#Petrology**, In this Video I have discussed about Uniaxial **Minerals**, : Optic Axis Uniaxial Indicatrix Uniaxial ...

Relief in Optical Mineralogy - Relief in Optical Mineralogy by Diana L. 6,127 views 6 years ago 1 minute, 35 seconds - Learn about relief in **optical mineralogy**,: how to identify it and why it works. See the Becke Line video for more!

What is relief in optical mineralogy?

Optical Mineralogy | Uniaxial Interference figures , Optic Sign Determination, Sign Of Elongation - Optical Mineralogy | Uniaxial Interference figures , Optic Sign Determination, Sign Of Elongation by Geo Mind 16,154 views 3 years ago 1 hour, 6 minutes - Mineralogy, **#Geology**, **#GATEGG** **#OpticalMineralogy** The interference figure provides the basis for determining whether an ...

Garnet thin section under microscope | Optical Mineralogy, Heavy Isotropic Minerals - Garnet thin section under microscope | Optical Mineralogy, Heavy Isotropic Minerals by Earth Detective 3,169 views 1 year ago 1 minute, 10 seconds - Garnet thin section under microscope with all **optical**, properties. **#garnet** **#mineralogy**, **#geology**, **#microscope** **#thin_section** ...

Quartz in Thin Section under Microscope | Optical Mineralogy | PPL Cleavage, Pleochroism, twinning - Quartz in Thin Section under Microscope | Optical Mineralogy | PPL Cleavage, Pleochroism, twinning by Earth Detective 9,579 views 1 year ago 1 minute, 8 seconds - In this video, we'll be looking at Quartz in Thin Sections under the microscope. We'll be discussing the **optical mineralogy**, of ...

Biotite tutorial Optical mineralogy - Biotite tutorial Optical mineralogy by Matt Kohn 8,632 views 2 years ago 4 minutes, 35 seconds - Several videos of Biotite in thin section, showing typical textures and **optical**, characteristics. Supported by Boise State University ...

Typical single crystal showing brown pleochroism

Pleochroic haloes around accessory mineral inclusions

Unusual orientation looking down on a cleavage face

Super well-developed birds' eye extinction

Red (high-Ti) crystals

Very pale brown (high-Mg) grain in peridotite

Very pale brown (high-Mg) crystals in schist

Greenish (high Fe³⁺, low-Ti) crystal

Rotated graphite inclusion trails

Hornblende tutorial Optical mineralogy - Hornblende tutorial Optical mineralogy by Matt Kohn 8,465 views 2 years ago 3 minutes, 35 seconds - Several videos of hornblende in thin section, showing typical textures and **optical**, characteristics. Supported by Boise State ...

Typical plutonic

Granulite-facies, end section

Plutonic, zoned (pale green to brown pleochroic)

Typical metamorphic (green to blue-green pleochroic)

Garden-variety amphibolite

Mg-rich (pale pleochroic)

Pale blue-green pleochroic

Amphibole discrimination tutorial Optical mineralogy - Amphibole discrimination tutorial Optical mineralogy by Matt Kohn 8,549 views 2 years ago 7 minutes, 56 seconds - A series of videos illustrating how to identify different amphiboles. Supported by Boise State University and the US National ...

Amphibole cleavage (60-120°) in hornblende

Amphibole cleavage (60-120°) in gedrite

Amphibole cleavage (60-120°) in glaucophane

Clinopyroxene with pseudo 60-120° cleavage (oblique section)
Characteristic cpx end section cleavage with c. 90-90° cleavage
Intermediate cpx section with c. 80-100° cleavage
How to find an end section with 60-120° cleavage
Inclined extinction in hornblende
Inclined extinction in actinolite
Inclined extinction and twins in cummingtonite
Parallel extinction in gedrite
Parallel extinction in anthophyllite
Gray pleochroism in gedrite
Brown pleochroism in hornblende (Ti-rich)
Green-Bluegreen-Yellowgreen pleochroism in hornblende
Blue-Lavender-Yellowgreen pleochroism in glaucophane
Actinolite cores (light green) with hornblende rims (darker green)
Hornblende core (dark green) with cummingtonite rim (colorless)
Intro to Optical Mineralogy - Intro to Optical Mineralogy by Terry Naumann 2,274 views 2 years ago
1 hour, 13 minutes - And finally we're going to discuss three **Optical**, classes of **minerals**, and how they fit into the six different Crystal systems we ...
Optical Mineralogy Part-1 | Basics of Light | Geology | Mineralogy | GATE | IIT JAM | UPSC |NET -
Optical Mineralogy Part-1 | Basics of Light | Geology | Mineralogy | GATE | IIT JAM | UPSC |NET
by Geo Mind 34,457 views 3 years ago 42 minutes - Mineralogy, #**Geology**, #Geography #IITJAM
#GATEGG **Optical Mineralogy**, Part-1 <https://davehirsch.com/other/thinsections/> Basics ...
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