

TEMA 2

Fundamentos de la Cristalografía

Estados de la materia

gaseoso



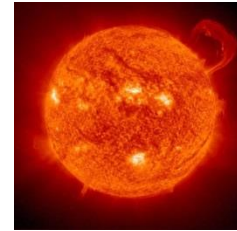
líquido



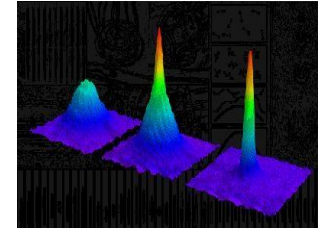
sólido



otros estados



Plasma

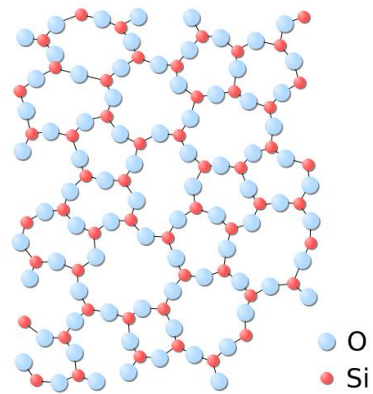


<http://es1.ph.man.ac.uk/research>

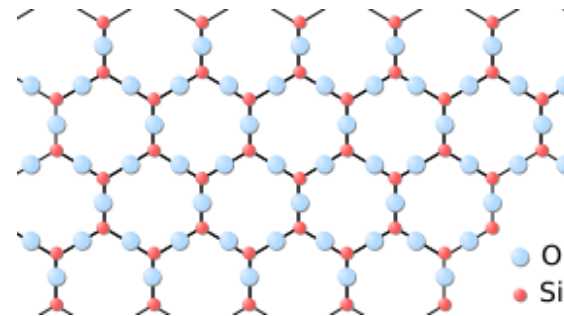
Condensados
cuánticos
(Bose-Einstein)

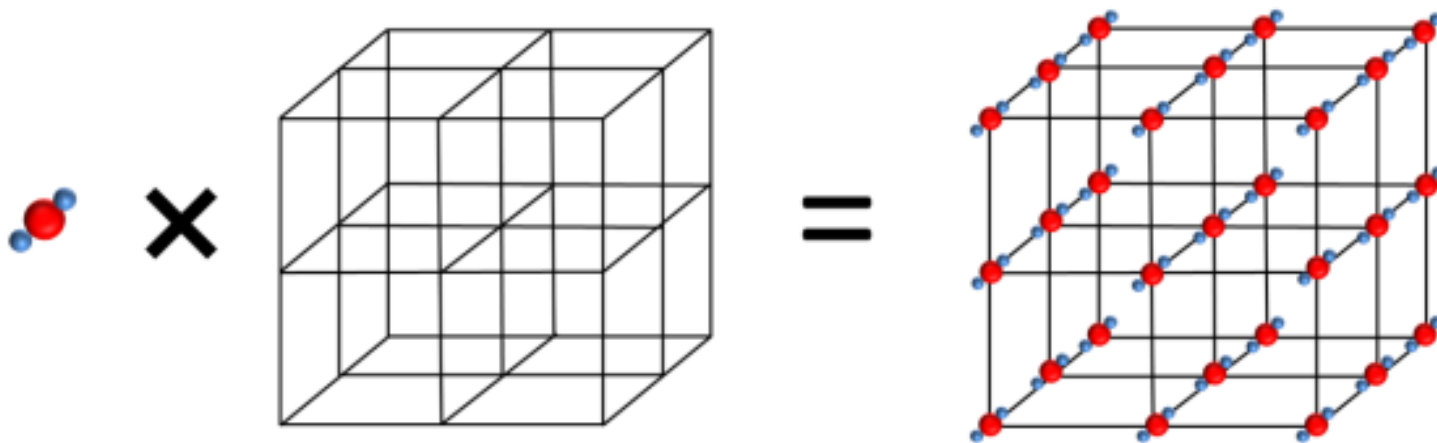


estructura del vidrio



estructura del cuarzo

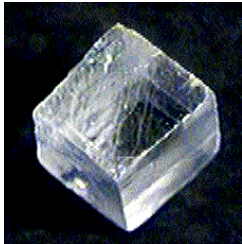




CRISTAL = MOTIVO X RED

Propiedades fundamentales del estado cristalino

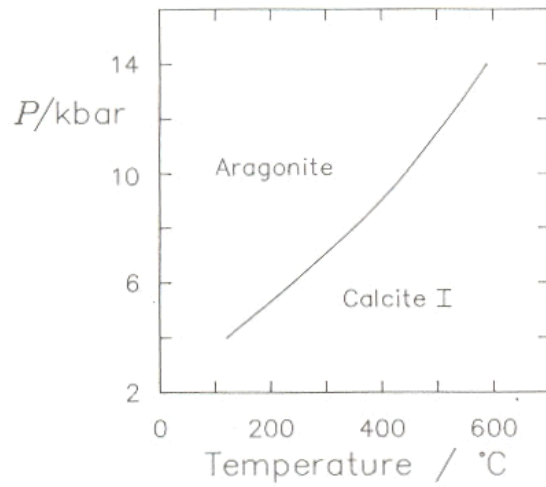
Invarianza



calcita



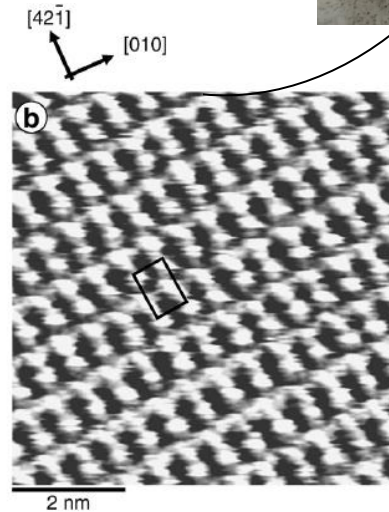
aragonito



Periodicidad

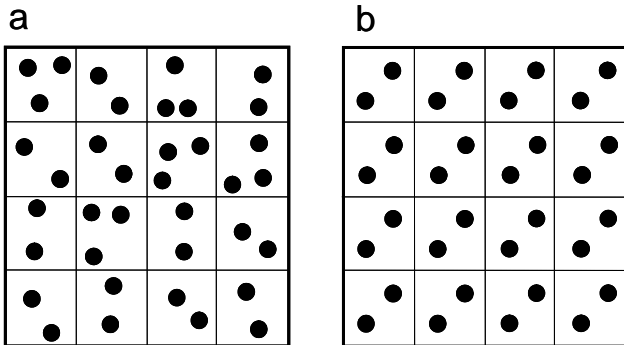
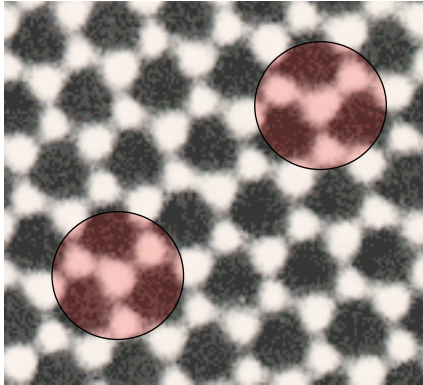


Cristales de dolomita



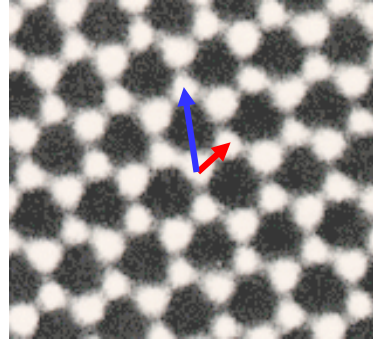
Superficie (104) de dolomita

Homogeneidad

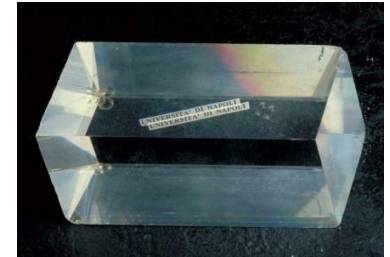


Homogeneidad estadística (a) y homogeneidad periódica (b). Modificado de Johnson, A. (1971) en: Seifert, H.: *Strukturgetrenkte Grenzflächenvorgänge in der unbelebten und belebten Natur*. Braunschweig: Vieweg.

Anisotropía

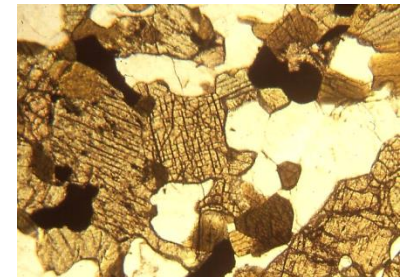
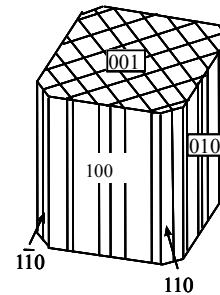


Propiedades ópticas

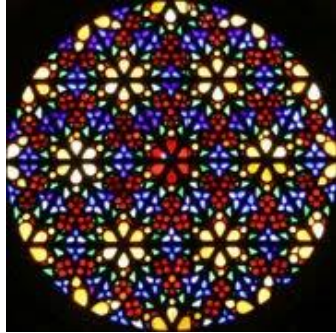


<http://www.na.infn.it/Museum/schede>

Exfoliación



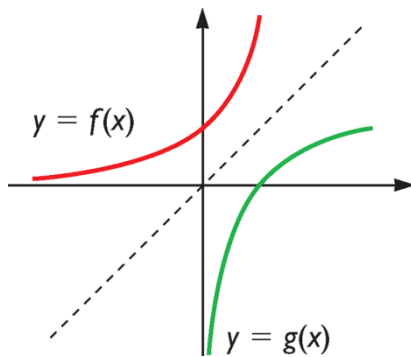
piroxenos



Catedral de Palma de Mallorca



Girasol



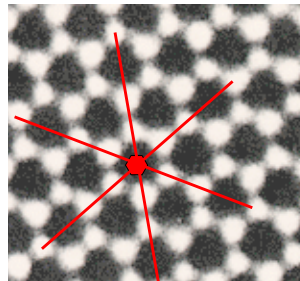
Ecuaciones simétricas

Simetría

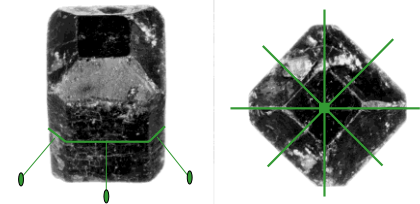


Canon Cancrizante J.S. Bach. Ofrenda Musical BWV 1079

Simetría cristalográfica



Simetría hexagonal en la estructura de la cordierita



Expresión morfológica de la simetría interna cristalina

APÉNDICE: CANON CANCRIZANTE DE J.S. BACH



BWV 1079.3a
1st Edn 'Canon 1 a 2. [cancrizans]'

A musical score for the Canon in B-flat major, BWV 1079.3a. The score is written for two voices (Soprano and Bass) and is in 3/4 time. It consists of five systems of music. The first system starts at measure 1 and ends at measure 10. The second system starts at measure 11 and ends at measure 15. The third system starts at measure 16 and ends at measure 20. The fourth system starts at measure 21 and ends at measure 25. The fifth system starts at measure 26 and ends at measure 30. The score is written in a single system with two staves per system. The key signature is two flats (B-flat major) and the time signature is 3/4. The score is written in a clear, legible font.

<http://www.youtube.com/watch?v=xUHQ2ybTejU&NR=1>