Activitatea LP_06_2026

SIMETRIA REȚELELOR CRISTALINE

SISTEME CRISTALOGRAFICE

ELEMENTE SIMPLE DE SIMETRIE

(1) AXELE DE SIMETRIE:
***DEFINIȚIA;**
***OPERAȚIA DE SIMETRIE PENTRU STABILIREA AXELOR – *ROTAȚIA*;**
***ORDINUL AXELOR (n);**
***NOTAȚIA AXELOR (aA^n).**

(2) PLANELE DE SIMETRIE:
***DEFINIȚIA;**
***OPERAȚIA DE SIMETRIE PENTRU STABILIREA PLANELOR – *REFLEXIA/OGLINDIREA*;**
***ORDINUL PLANELOR (n);**
***NOTAȚIA PLANELOR (bP^n).**

(3) CENTRUL DE SIMETRIE:
***DEFINIȚIA;**
***OPERAȚIA DE SIMETRIE PENTRU STABILIREA CENTRULUI – *INVERSIUNEA*;**
***NOTAȚIA CENTRULUI (C/G).**

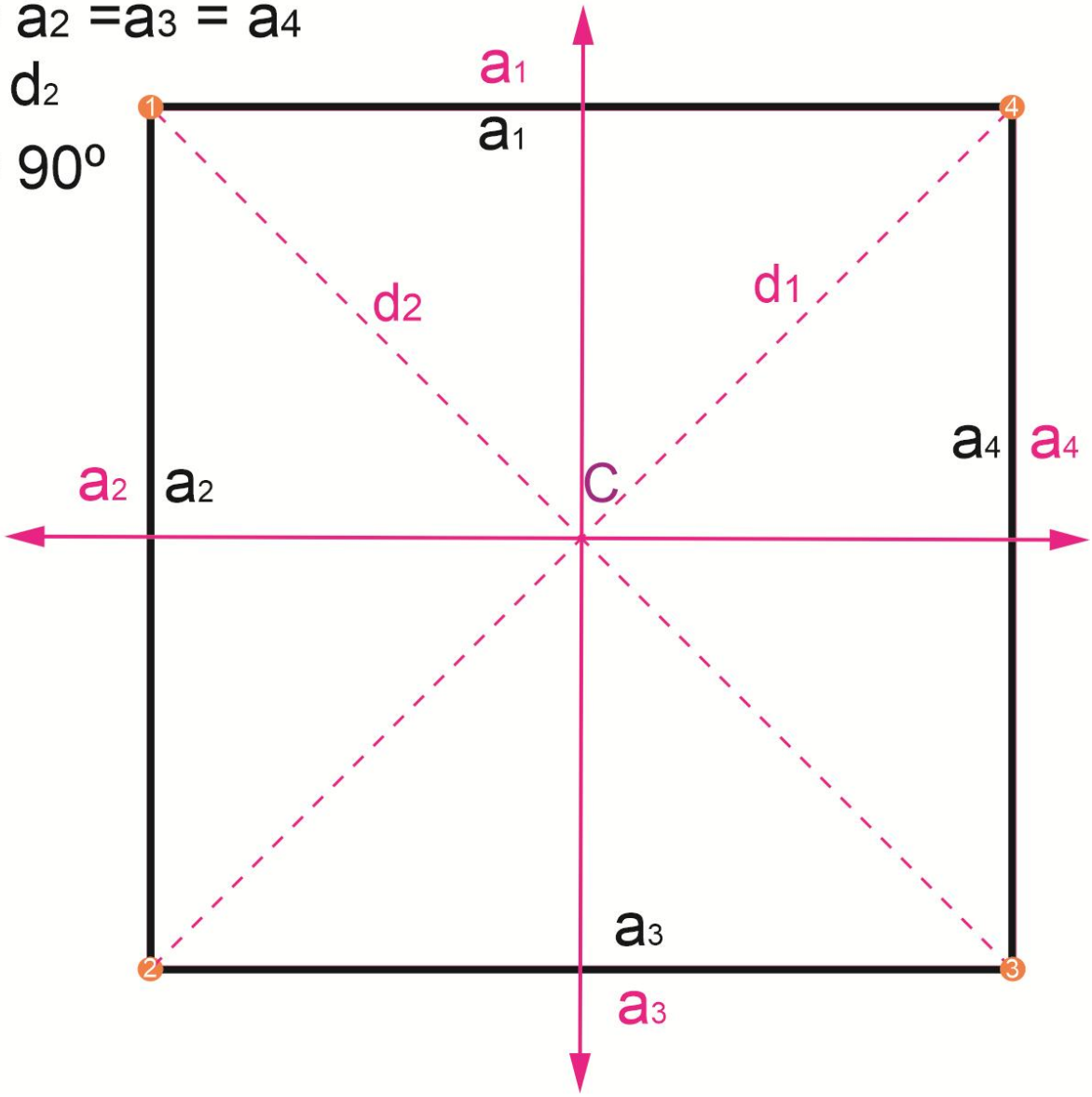
SIMETRIA POLIGOANELOR

PĂTRATUL

$a_1 = a_2 = a_3 = a_4$

$d_1 = d_2$

$\measuredangle = 90^o$

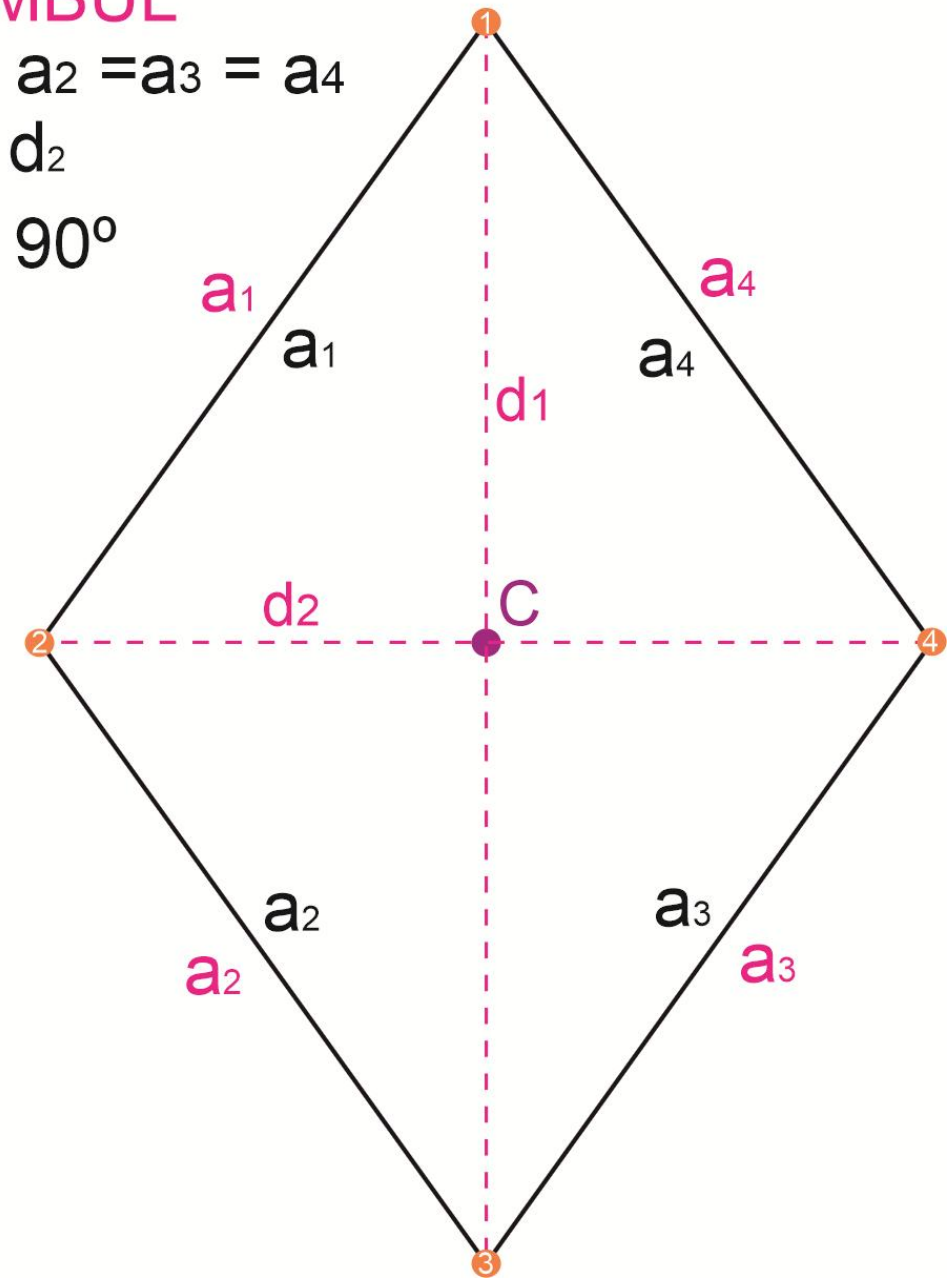


ROMBUL

$a_1 = a_2 = a_3 = a_4$

$d_1 > d_2$

$\measuredangle \neq 90^o$

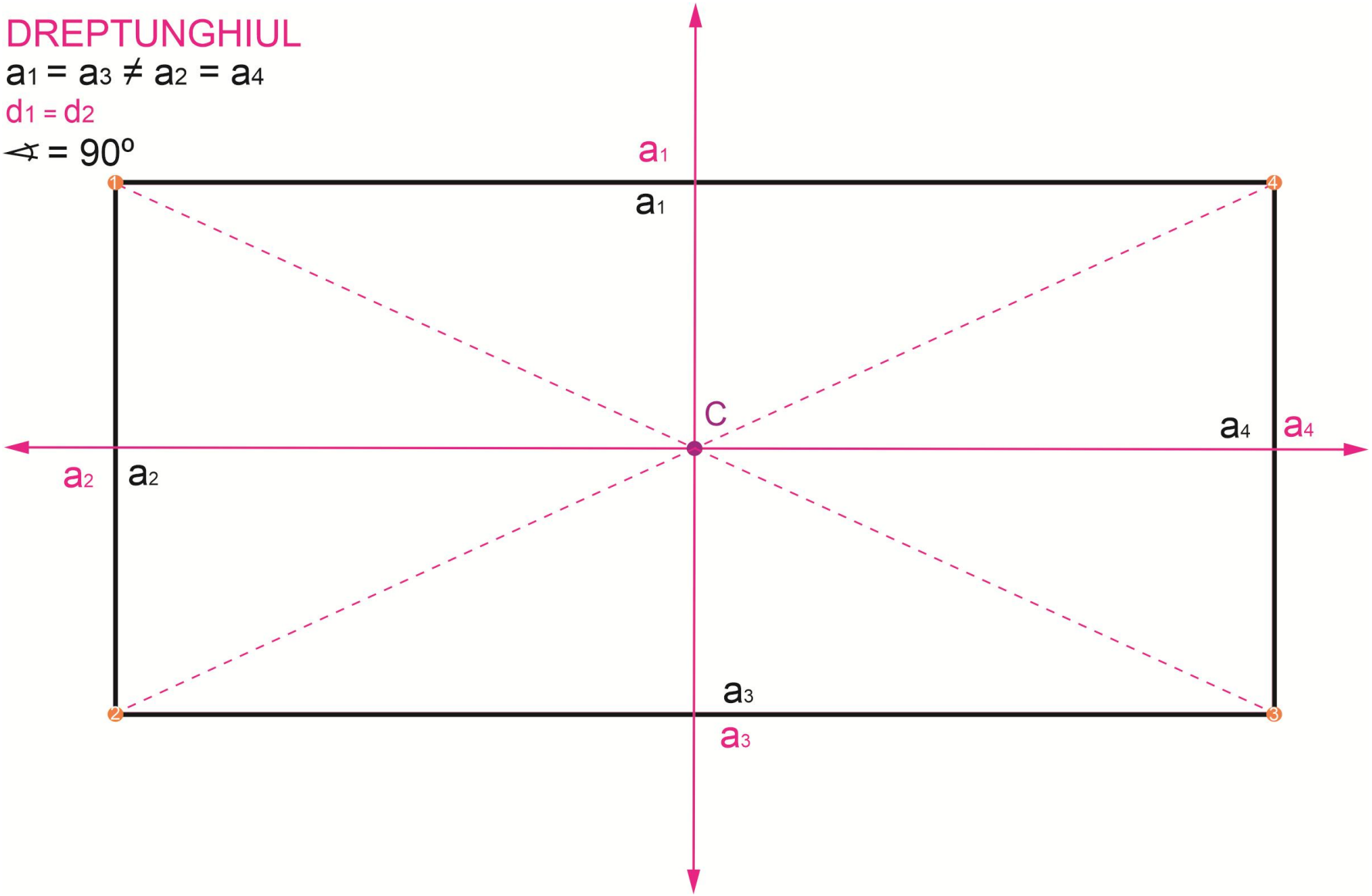


DREPTUNGHIUL

$a_1 = a_3 \neq a_2 = a_4$

$d_1 = d_2$

$\sphericalangle = 90^o$

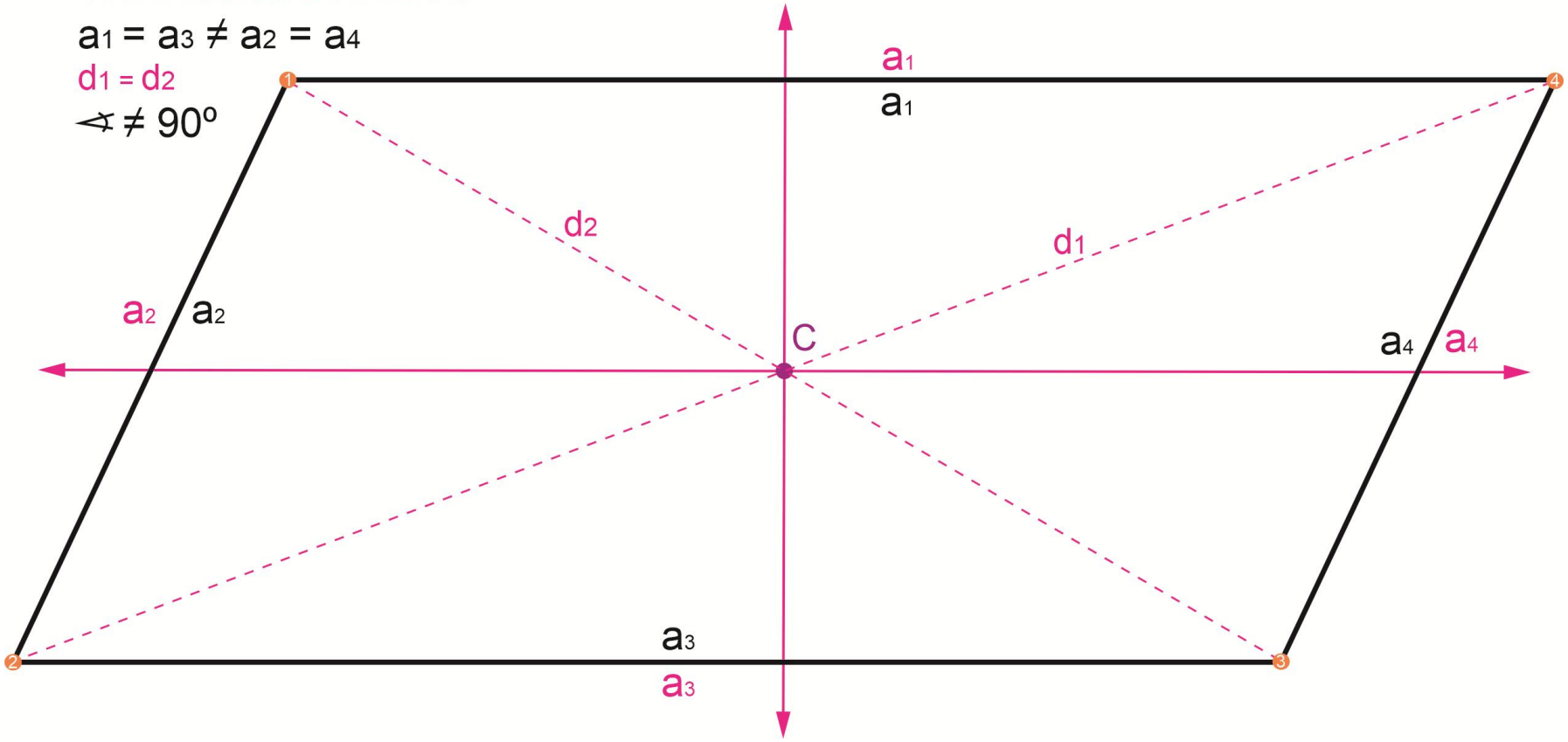


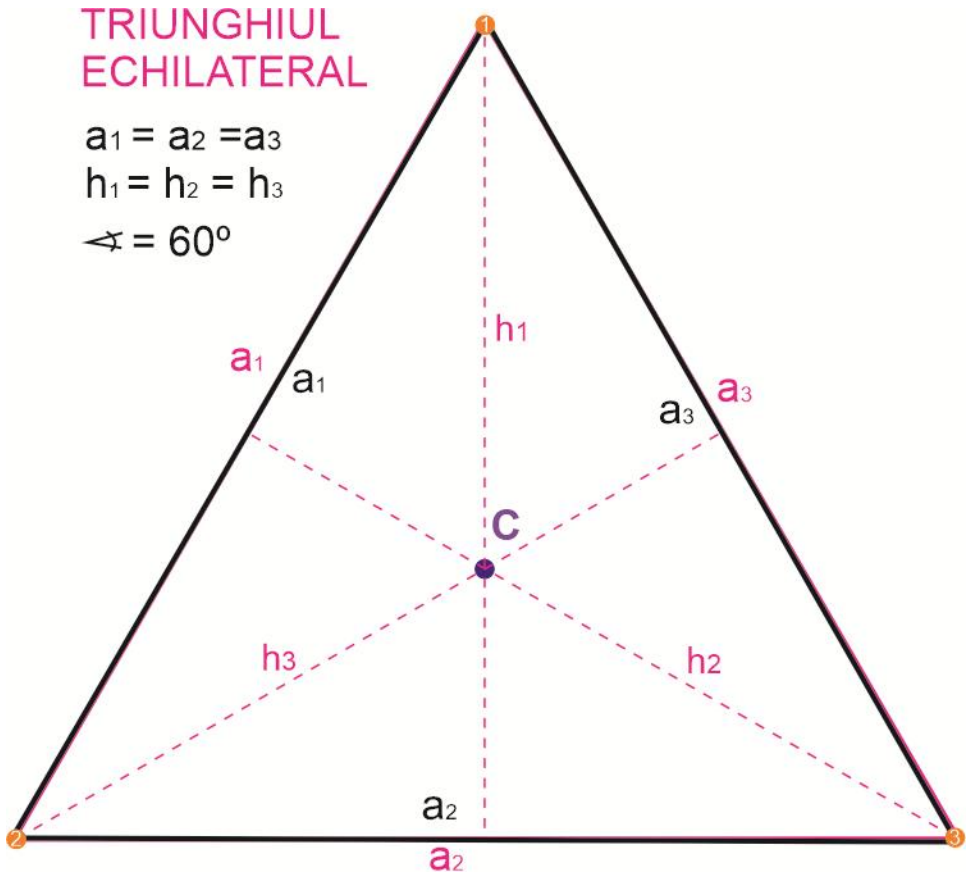
PARALELOGRAMUL

$a_1 = a_3 \neq a_2 = a_4$

$d_1 = d_2$

$\sphericalangle \neq 90^o$



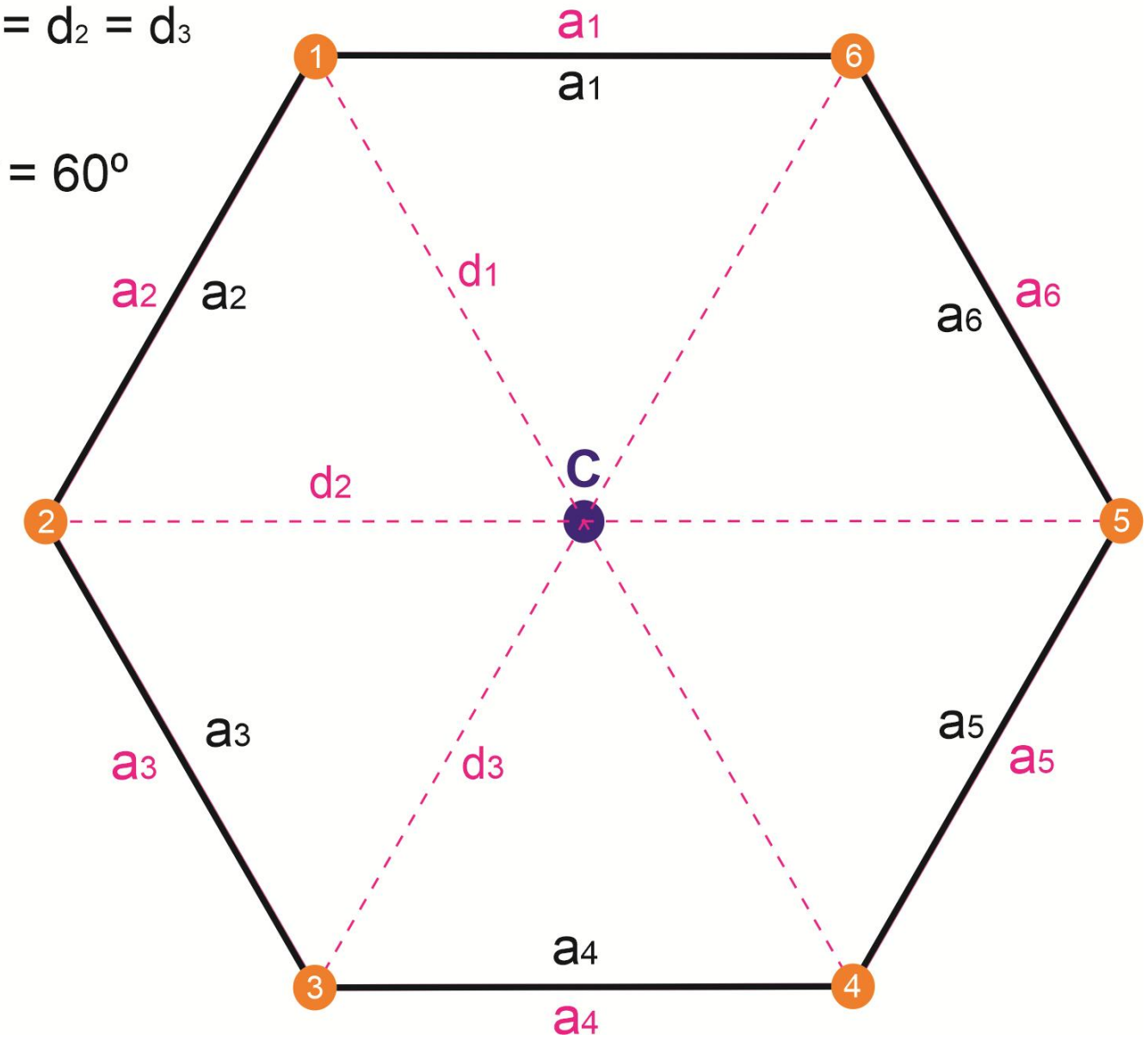

TRIUNGHIUL
ECHILATERAL
a1 = a2 =a3
h1 = h2 = h3
∢ = 60º
1
2
3
h1
a1
a1
a3
a3
C
h3
h2
a2
a2

HEXAGONUL

$a_1 = a_2 = a_3 = a_4 = a_5 = a_6$

$d_1 = d_2 = d_3$

$\measuredangle = 60^o$



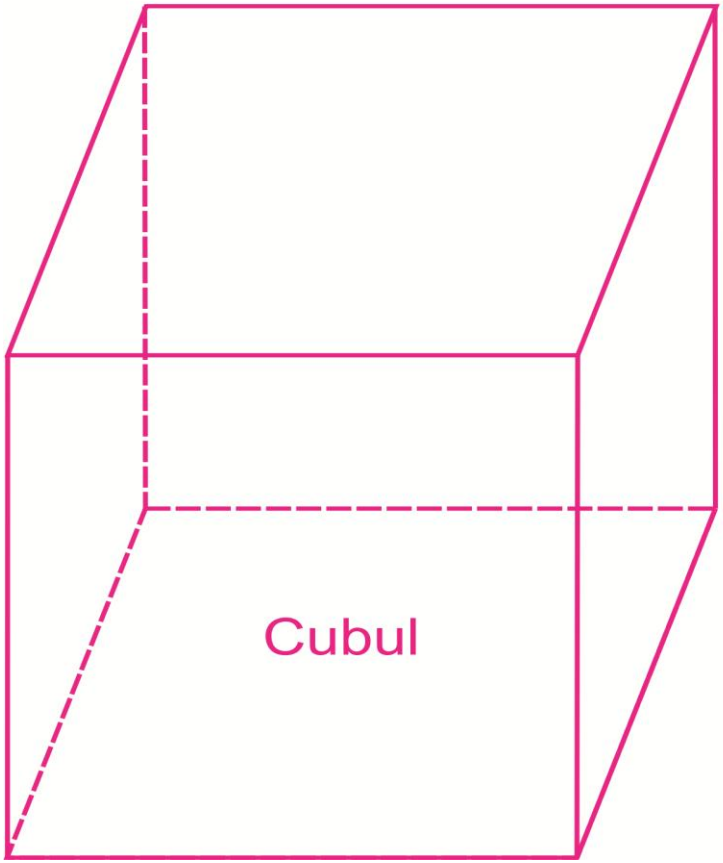
POLIEDRE

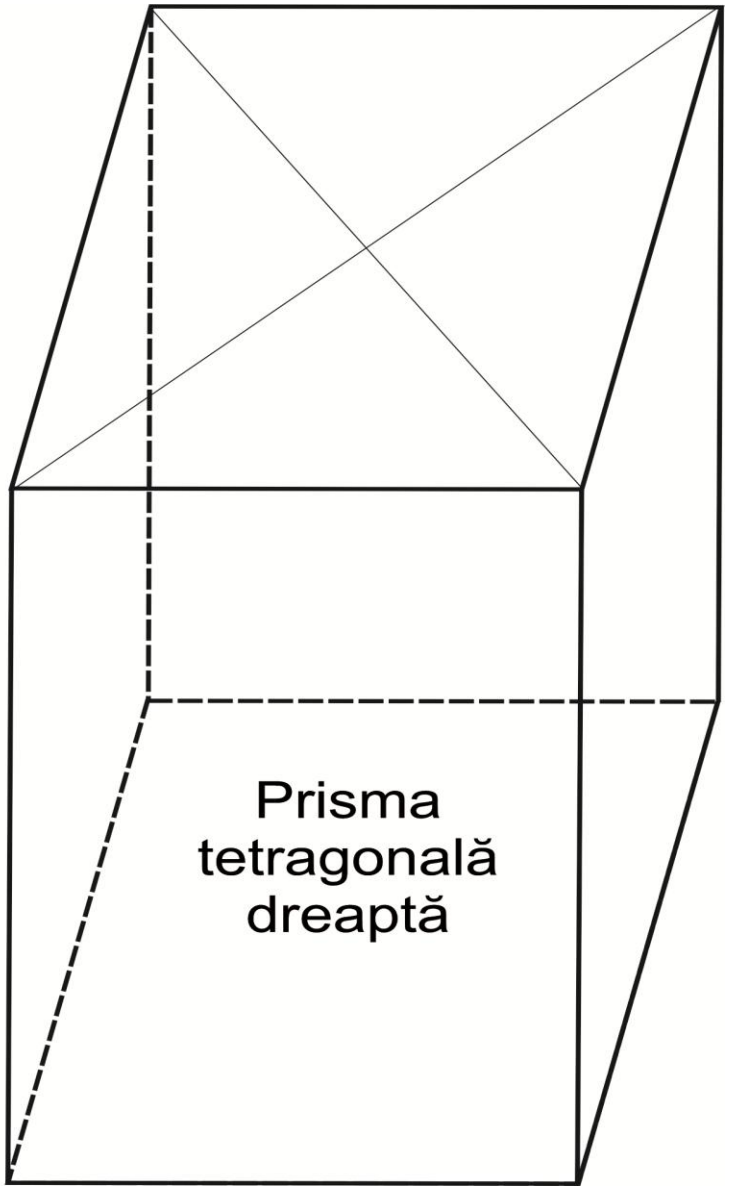
S.C
F = 6
C = 8
M = 12

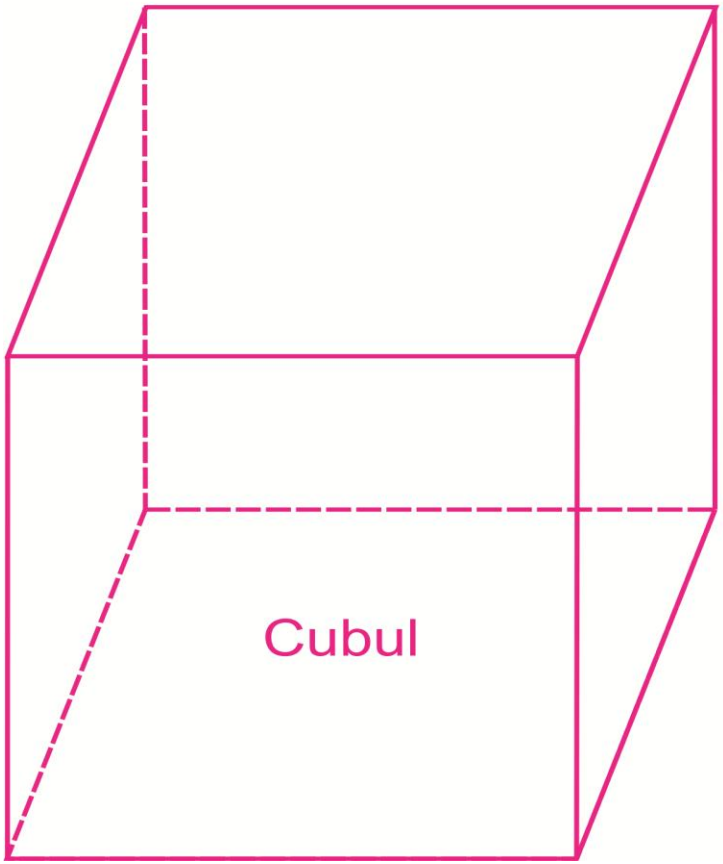
S.R
F =
C =
M =

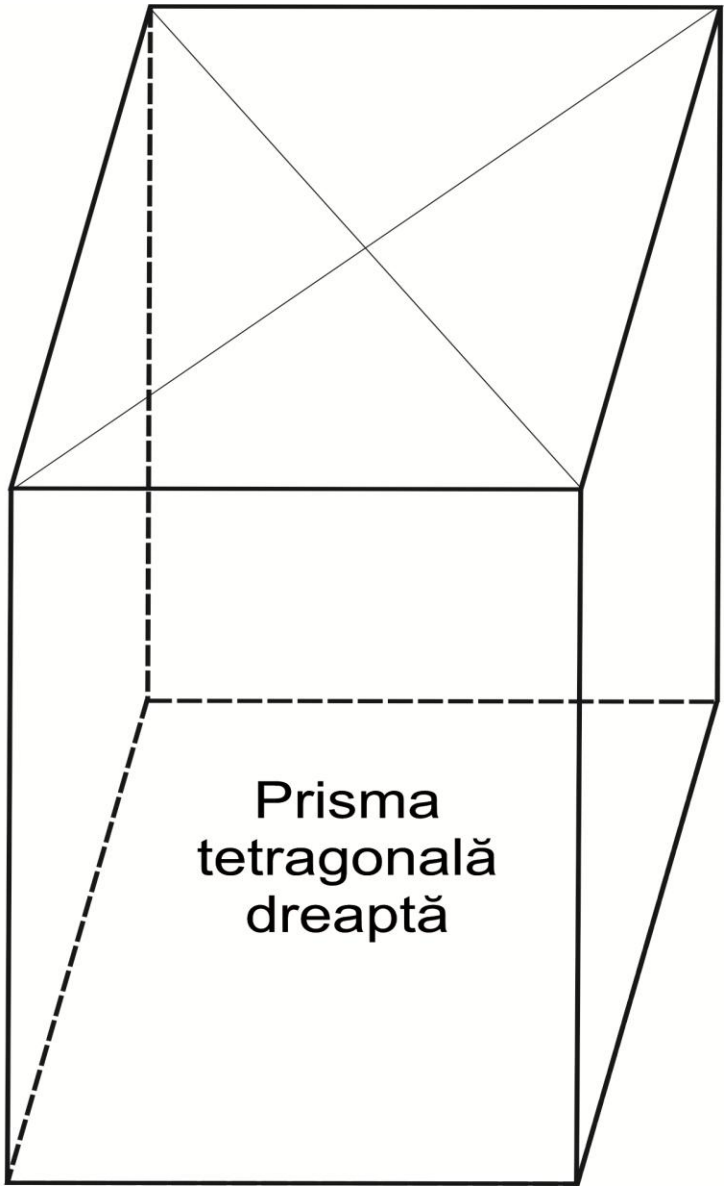
S.H
F = 8
C = 12
M = 18

S.T
F =
C =
M =

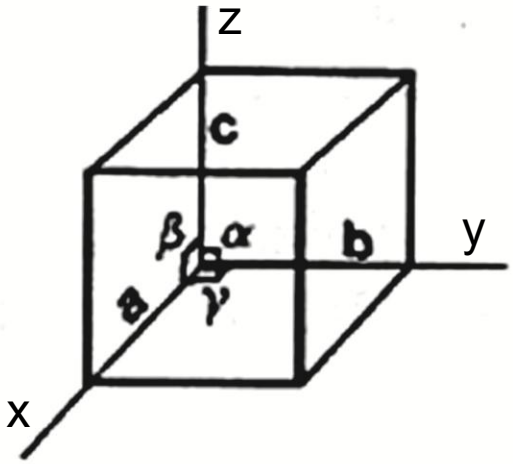




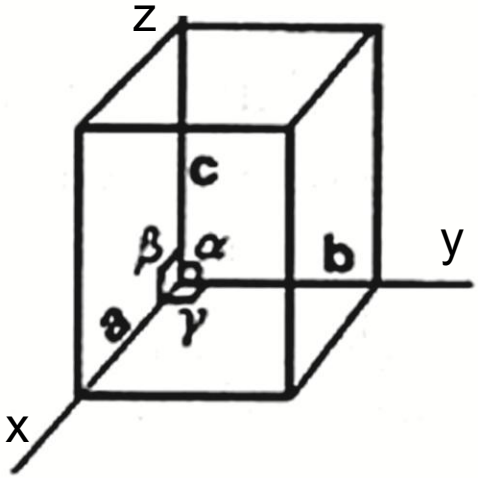

Cubul


Prisma
tetragonală
dreaptă

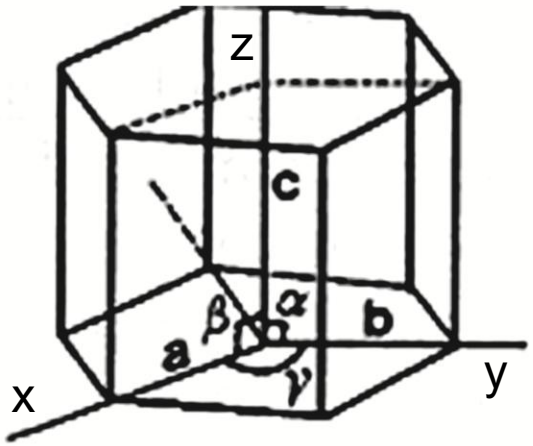
SISTEMUL CUBIC



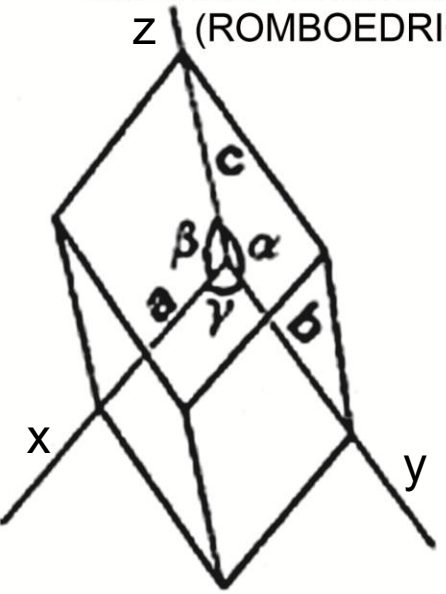
SISTEMUL TETRAGONAL



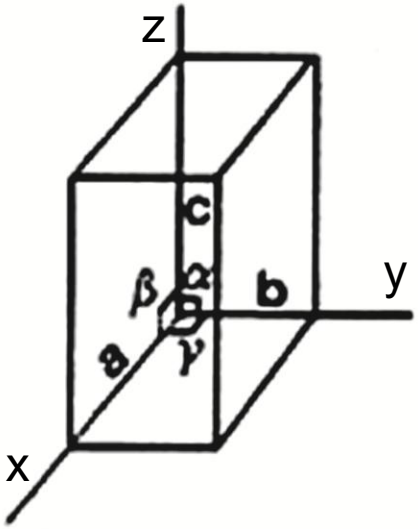
SISTEMUL HEXAGONAL



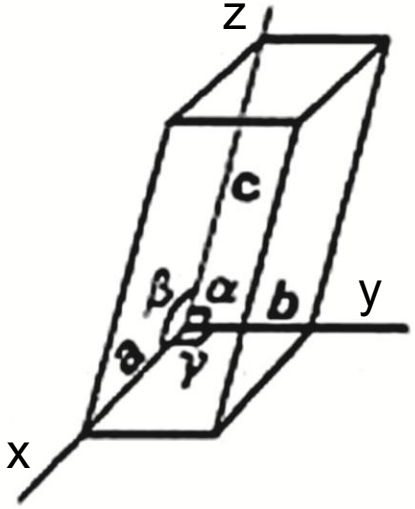
SISTEMUL TRIGONAL (ROMBOEDRIC)



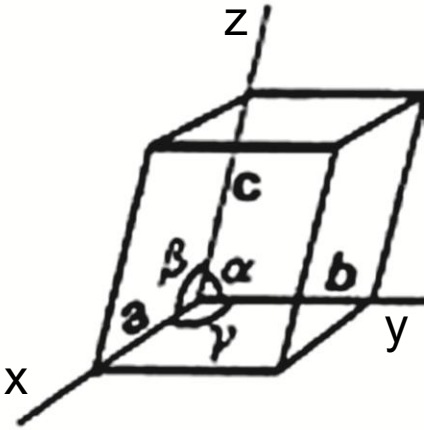
SISTEMUL ROMBIC



SISTEMUL MONOCLINIC



SISTEMUL TRICLINIC



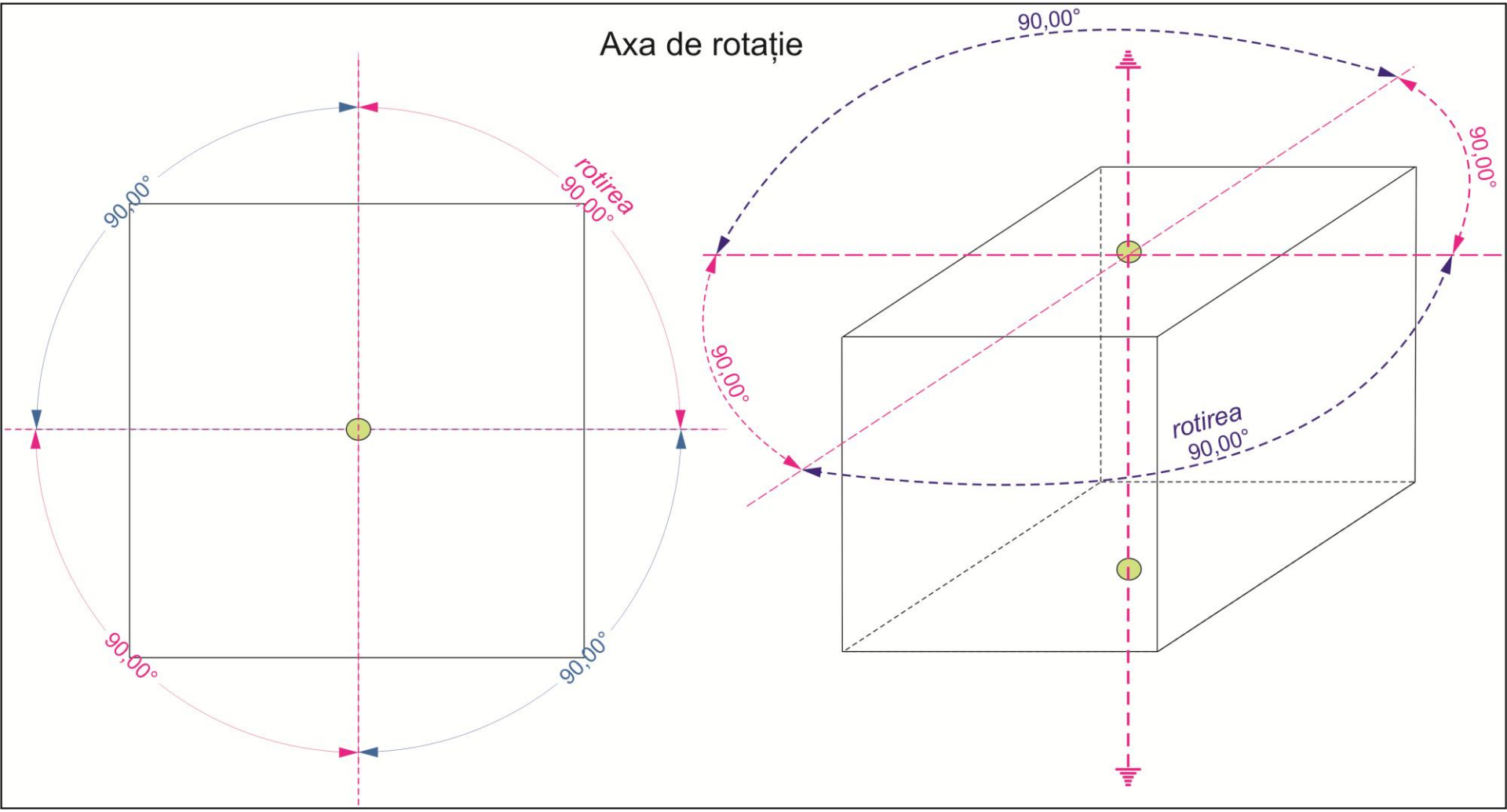
SISTEMELE CRISTALOGRAFICE

(Androne, 2008)

SIMETRIA POLIEDRELOR

(1) AXELE DE SIMETRIE

*DEFINIȚIA;
*OPERAȚIA DE SIMETRIE PENTRU STABILIREA AXELOR – *ROTAȚIA*;
*ORDINUL AXELOR (n);
*NOTAȚIA AXELOR (aA^n).



(2) PLANELE DE SIMETRIE

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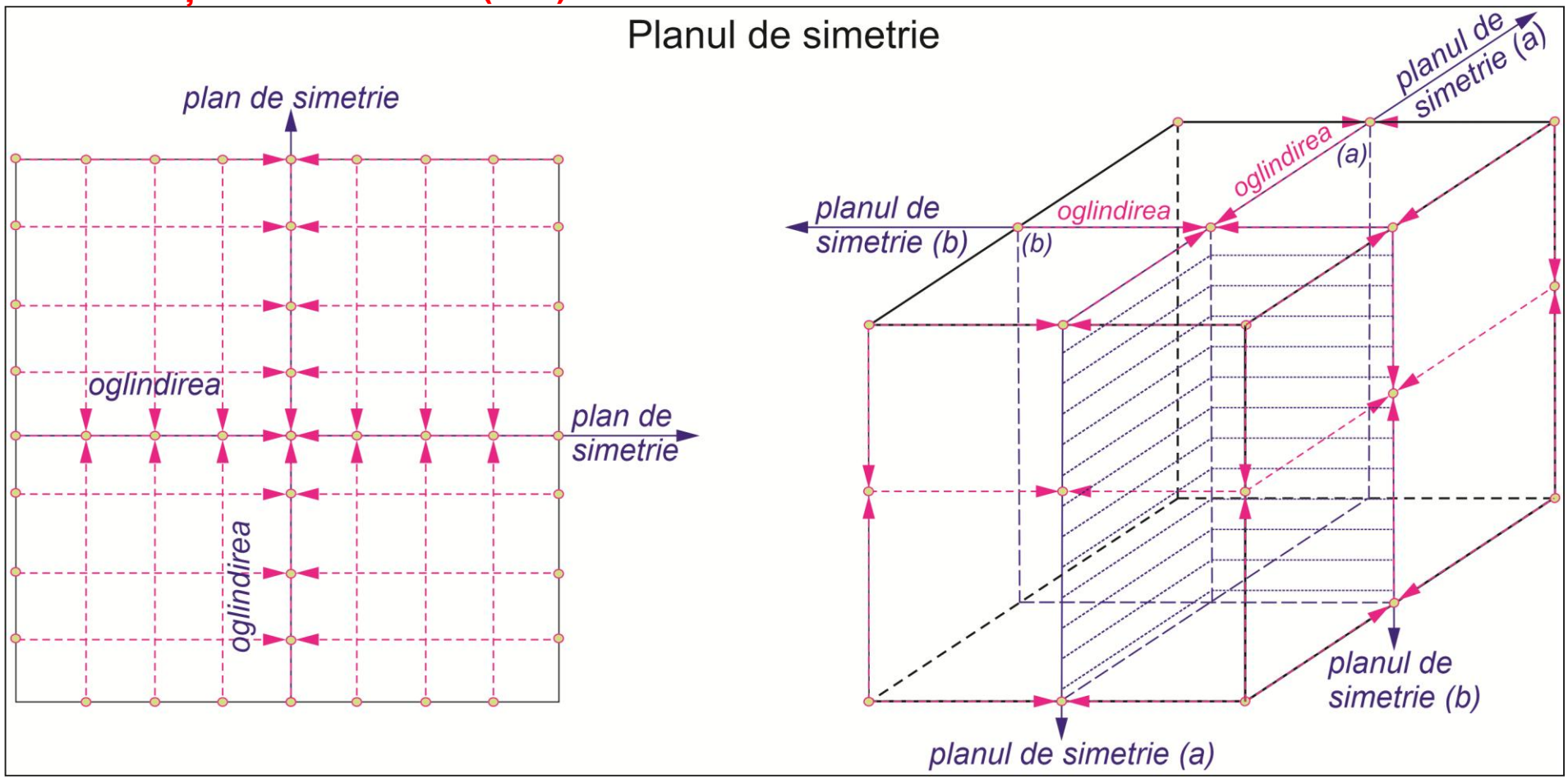
***DEFINIȚIA;**
***OPERAȚIA DE SIMETRIE PENTRU STABILIREA PLANELOR – *REFLEXIA/OGLINDIREA*;**
***ORDINUL PLANELOR (n);**
***NOTAȚIA PLANELOR (bP^n).**



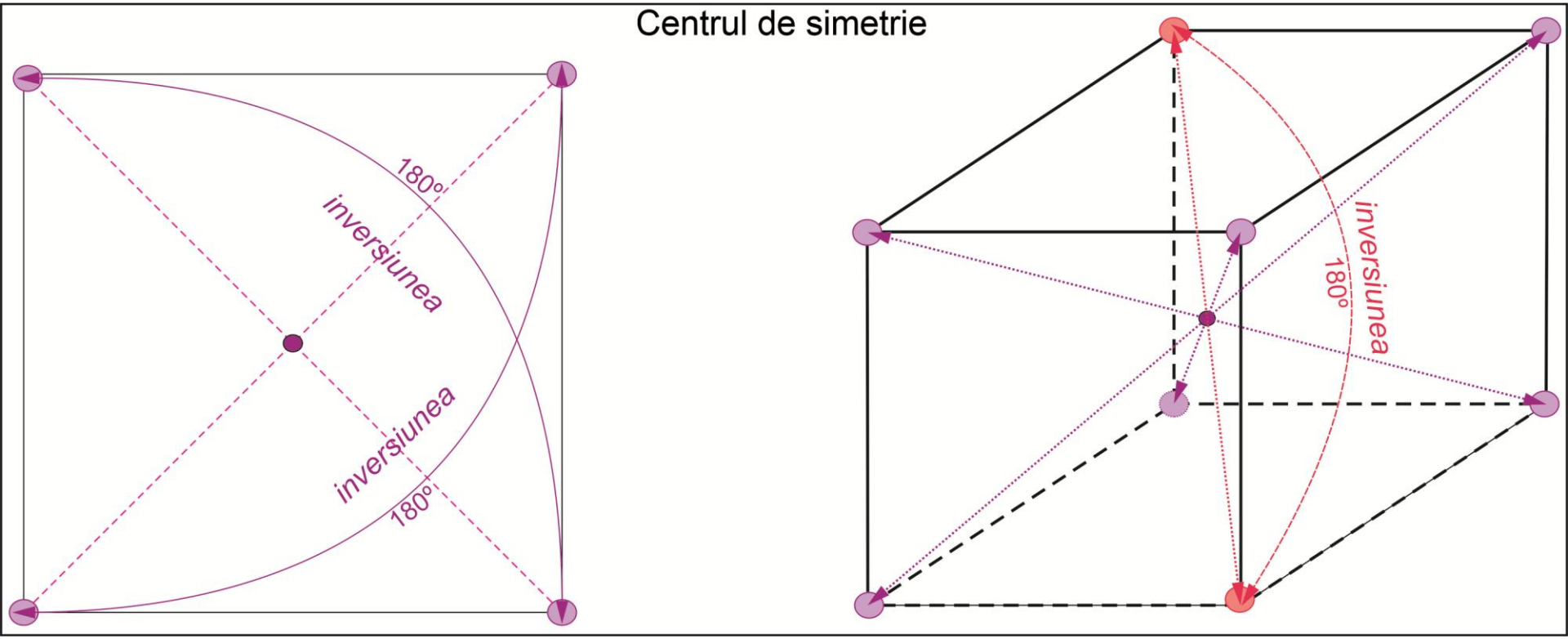
(3) CENTRUL DE SIMETRIE

(3) CENTRUL DE SIMETRIE:

*DEFINIȚIA;

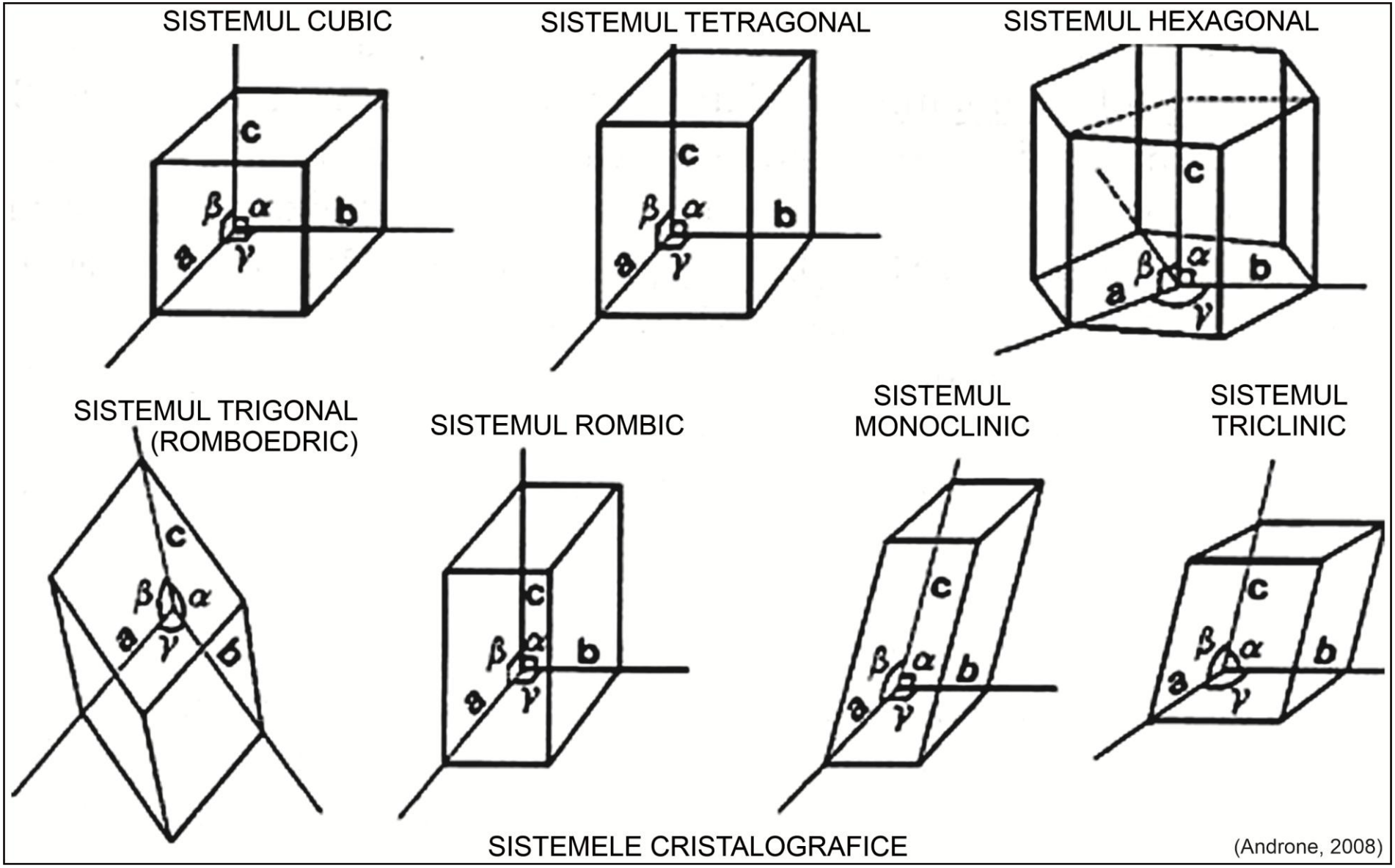
*OPERAȚIA DE SIMETRIE PENTRU STABILIREA CENTRULUI – *INVERSIUNEA*;

*NOTAȚIA CENTRULUI (C/G).

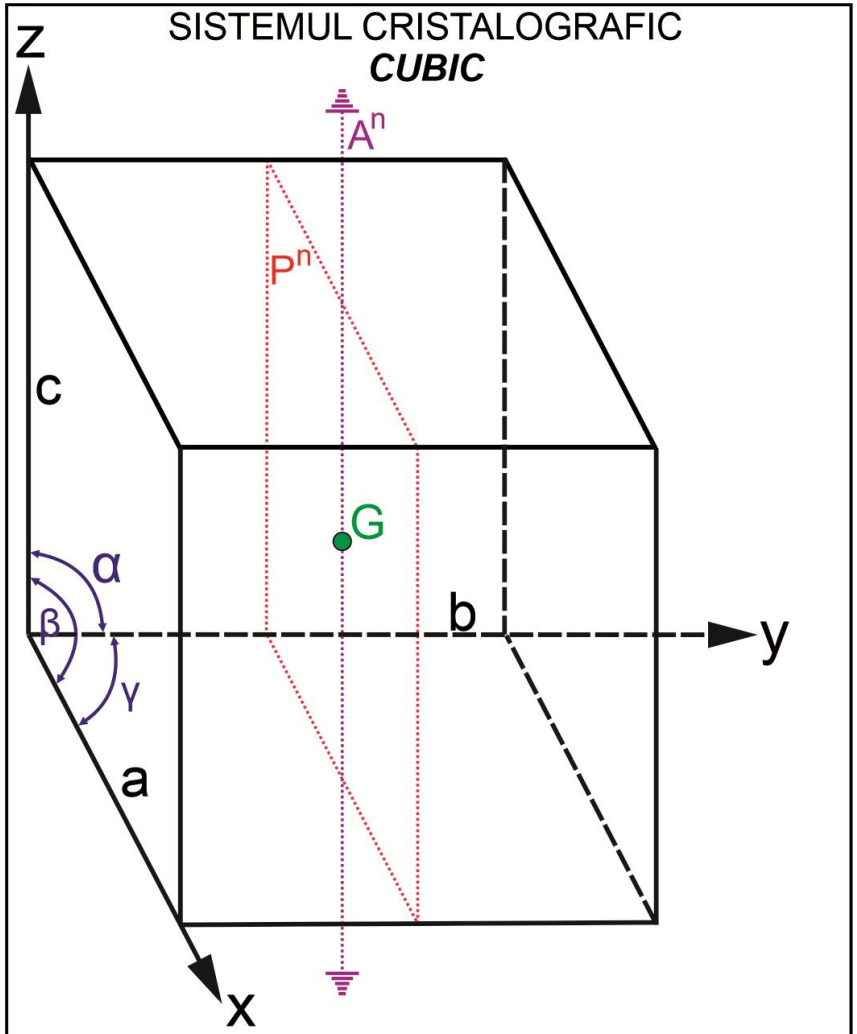


SISTEMELE CRISTALOGRAFICE

*Sunt caracterizate de: *paralelipipedul elementar*, *relația axială* și *simetria carcteristică*



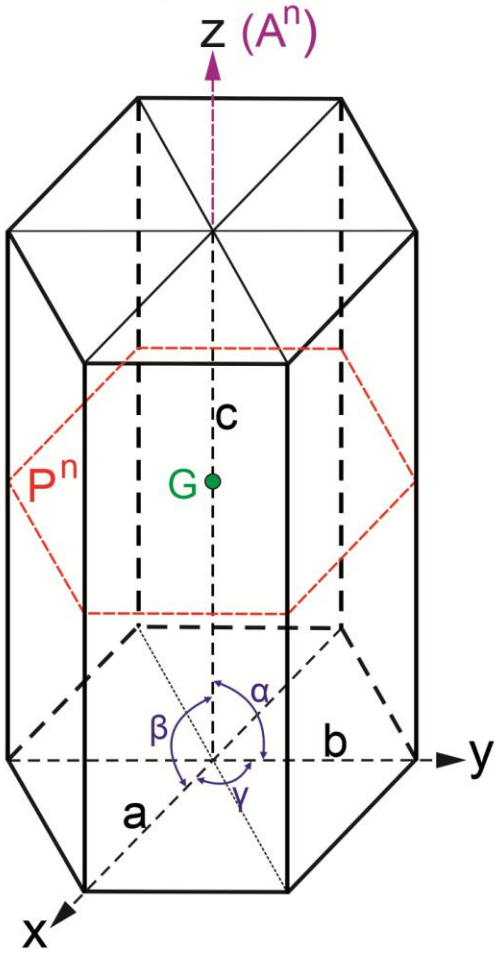
SISTEMUL CRISTALOGRAFIC
CUBIC



1. Paralelipipedul primitiv = cub
2. Relația axială:
a=b=c; γ=β=α=90º

3. Simetria rețelei cristaline:
A^n - mai multe axe de simetrie de ordinul 3 și 4
P^n - plane de simetrie de ordinul 3 și 4
G - centrul de simetrie

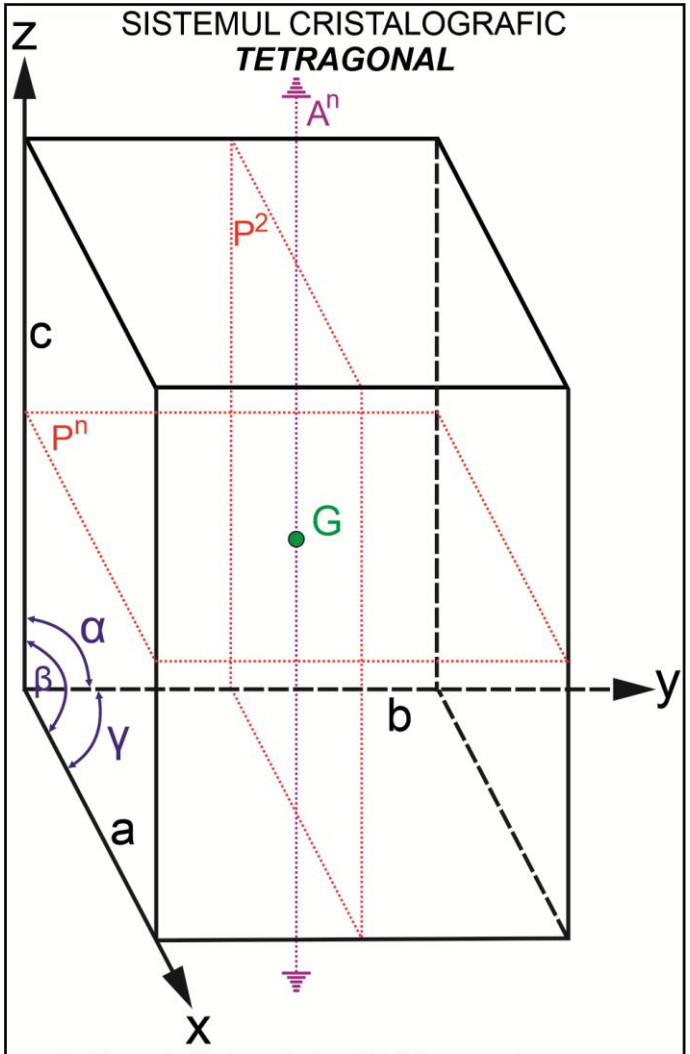
SISTEMUL CRISTALOGRAFIC *HEXAGONAL*



1. Paralelipipedul primitiv = *prisma hexagonală dreaptă*
2. Relația axială:
a=b≠c; γ=120°; β=α=90°

3. Simetria rețelei cristaline:
A^n- axă de simetrie unică de ordinul 6
P^n- plan de simetrie de ordinul 6
G - centrul de simetrie

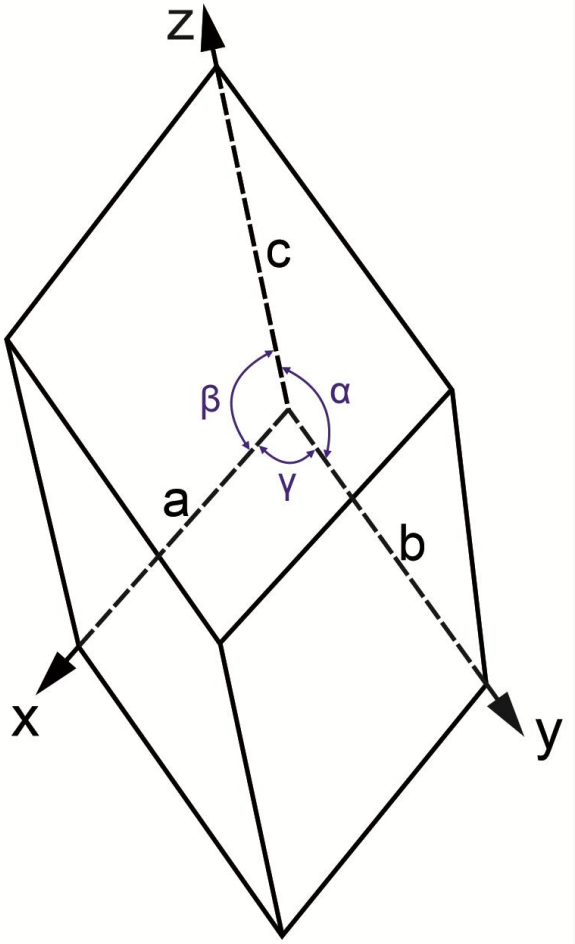
SISTEMUL CRISTALOGRAFIC *TETRAGONAL*



1. Paralelipipedul primitiv = *prisma tetragonală dreaptă*
2. Relația axială:
a=b=c; γ=β=α=90°

3. Simetria rețelei cristaline:
A^n- axă de simetrie unică de ordinul 4
P^n- plan de simetrie de ordinul 4
G - centrul de simetrie

SISTEMUL CRISTALOGRAFIC *ROMBOIEDRIC (TRIGONAL)*

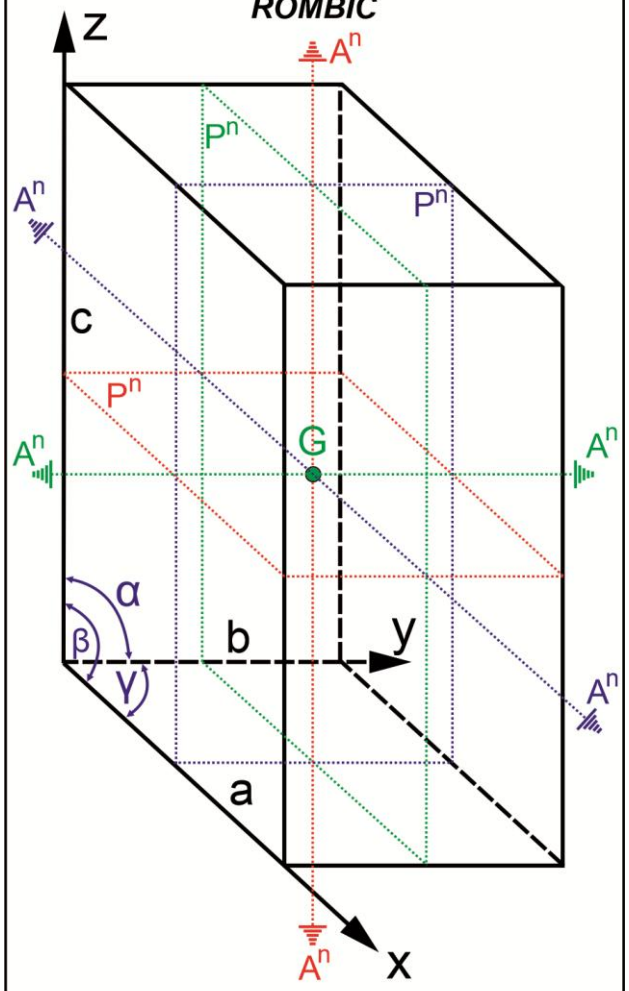


1. Paralelipipedul primitiv = *prisma romboiedrică*
2. Relația axială:
a=b=c; γ=β=α ≠ 90°

3. Simetria rețelei cristaline:
A^n- axă de simetrie unică de ordinul 3

Z SISTEMUL CRISTALOGRAFIC

ROMBIC

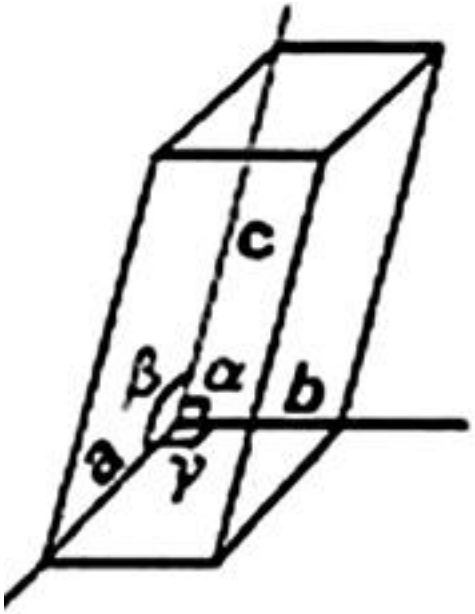


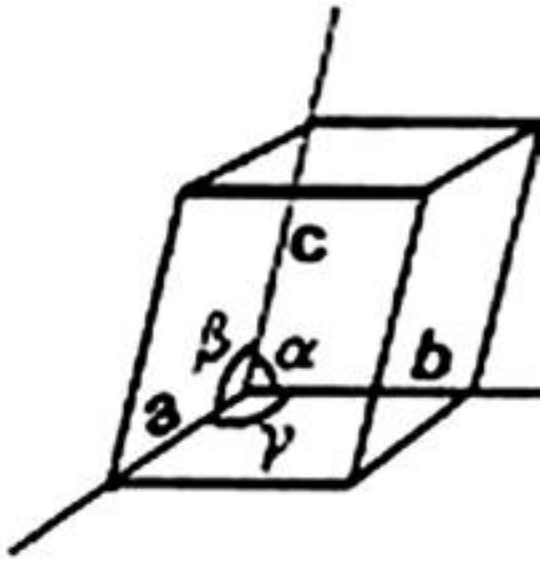
1. Paralelipipedul primitiv = ...
.....

2. Relația axială:
.....; .....

3. Simetria rețelei cristaline:
A^n - .....
P^n - .....
G - .....

SISTEMUL **MONOCLINIC**





SISTEMUL **TRICLINIC**