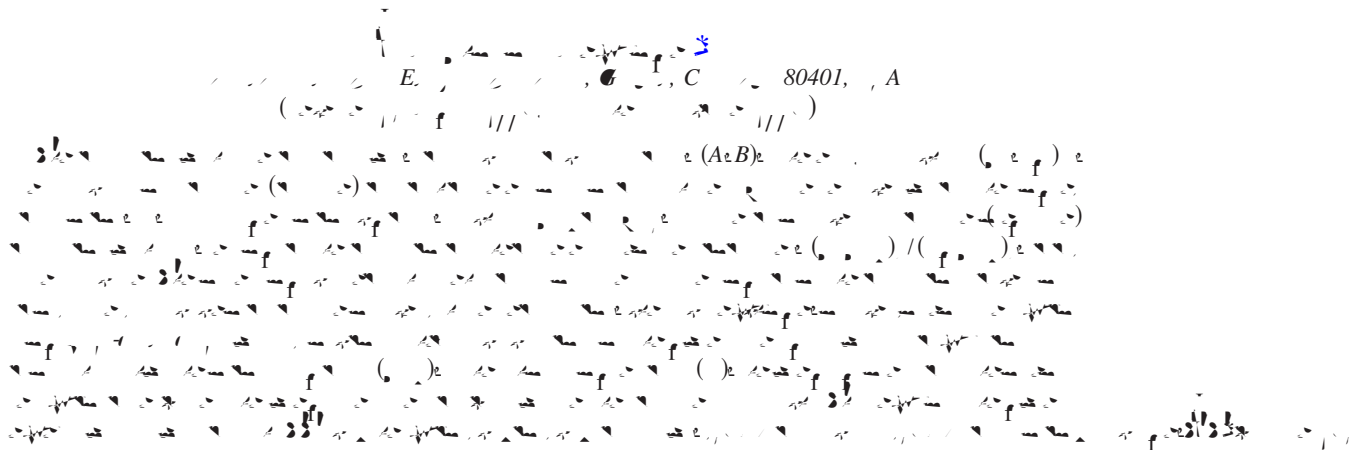


**II-VI oxides phase separate whereas the corresponding carbonates order:
The stabilizing role of anionic groups**



\mathbb{R}^n 上的线性映射 f 的核 $\ker f$ 和像 $\operatorname{Im} f$ 满足以下性质：

- $\ker f$ 是 \mathbb{R}^n 的子空间。
- $\operatorname{Im} f$ 是 \mathbb{R}^m 的子空间。
- $\ker f$ 和 $\operatorname{Im} f$ 的维数满足秩-零化度定理：

$$\dim \ker f + \dim \operatorname{Im} f = n$$
- 如果 f 是单射，则 $\ker f = \{0\}$ 。
- 如果 f 是满射，则 $\operatorname{Im} f = \mathbb{R}^m$ 。
- 如果 f 是双射，则 $\ker f = \{0\}$ 且 $\operatorname{Im} f = \mathbb{R}^m$ 。

此外，对于任意子空间 $U \subseteq \mathbb{R}^n$ ，有：

- $f(U)$ 是 \mathbb{R}^m 的子空间。
- $\ker f \cap U$ 是 U 的子空间。
- f 在 U 上的限制 $f|_U$ 的核是 $\ker f \cap U$ 。

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III. FORMATION ENTHALPIES OF RANDOM AND ORDERED CaO-MgO AND CaCO₃-MgCO₃

The formation enthalpies of random and ordered CaO-MgO and CaCO₃-MgCO₃ are calculated using the following equations:

$$\Delta E_{\text{random}} = \sum_{i=1}^n \Delta E_i \quad (1)$$

where ΔE_i is the energy difference between the random and ordered states for the i -th site.

$$\Delta E_{\text{ordered}} = \sum_{i=1}^n \Delta E_i \quad (2)$$

The energy difference ΔE_i is calculated as follows:

$$\Delta E_i = \frac{1}{2} \left[\left(\frac{\partial E}{\partial x_i} \right)_{\text{random}} - \left(\frac{\partial E}{\partial x_i} \right)_{\text{ordered}} \right] \quad (3)$$

where E is the total energy of the system, and x_i is the concentration of the i -th site.

The formation enthalpies of random and ordered CaO-MgO and CaCO₃-MgCO₃ are calculated using the following equations:

$$\Delta H_{\text{random}} = \Delta E_{\text{random}} + \Delta H_{\text{formation}} \quad (4)$$

$$\Delta H_{\text{ordered}} = \Delta E_{\text{ordered}} + \Delta H_{\text{formation}} \quad (5)$$

where $\Delta H_{\text{formation}}$ is the formation enthalpy of the corresponding pure oxide or carbonate.

Δ (%) (ΔE)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

V. DECORATION OF METAL SUBLATTICE BY DIFFERENT CATIONS AT FIXED VOLUME: ΔE_{CE}

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

ΔE (Δ)

VI. CELL-INTERNAL RELAXATION: ΔE_{SR}

A. Oxides

ΔE (Δ)

$$\Delta E_{\text{eff}}(\omega) = \frac{1}{\omega} \left[\frac{1}{2} \left(\frac{1}{\omega} \frac{d\omega}{dt} \right) \Delta E_{\text{eff}} + \frac{1}{2} \left(\frac{1}{\omega} \frac{d\omega}{dt} \right) \Delta E_{\text{eff}} \right]$$

VII. CONCLUSIONS

$A B$
 ΔE
 ΔE
 $A B$
 $\%$
 $[\dots]$
 ΔE

ΔE
 ΔE

ACKNOWLEDGMENTS

ΔE
 ΔE

$27 \dots (\dots)$
 $C \dots$
 $19 \dots (\dots)$
 $A \dots$
 $E \dots (\dots)$
 $1 \dots (\dots)$
 $64 \dots (\dots)$
 $46 \dots$
 (\dots)
 $4 \dots (\dots)$
 $18 \dots$
 (\dots)
 $93 \dots$
 (\dots)
 $A B$
 $(A) / (B)$
 $46 \dots (\dots)$
 $62 \dots (\dots)$
 $59 \dots (\dots)$
 $72 \dots (\dots)$
 $84 \dots (\dots)$
 $42 \dots (\dots)$
 $69 \dots (\dots)$

31e
 38e
 37e
 65e

D... F...
 45e
 84e
 8e