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EDITORS

Energy Conversion Devices, Inc.

MATERIALS RESEARCH SO

[redacted]

[redacted] theoretical models [4-9]. The limit[redacted]

[redacted] the interaction energy, [redacted] (Ω), or the entropy, (S), associated with [redacted] the alloy state of order [redacted]

[redacted] phase diagrams of semiconductor alloys, we there[redacted] approach based on a combination of [redacted]

... with lattice parameter ... and represent its state of order by a superposition ...

... results for $A_nB_{4-n}C_4$ ($0 \le n \le 4$) ground state ordered structures [18]. For a given ...

... elastic ... charge transfer, polarization relaxation of the C-sub... [18]. We thus ...

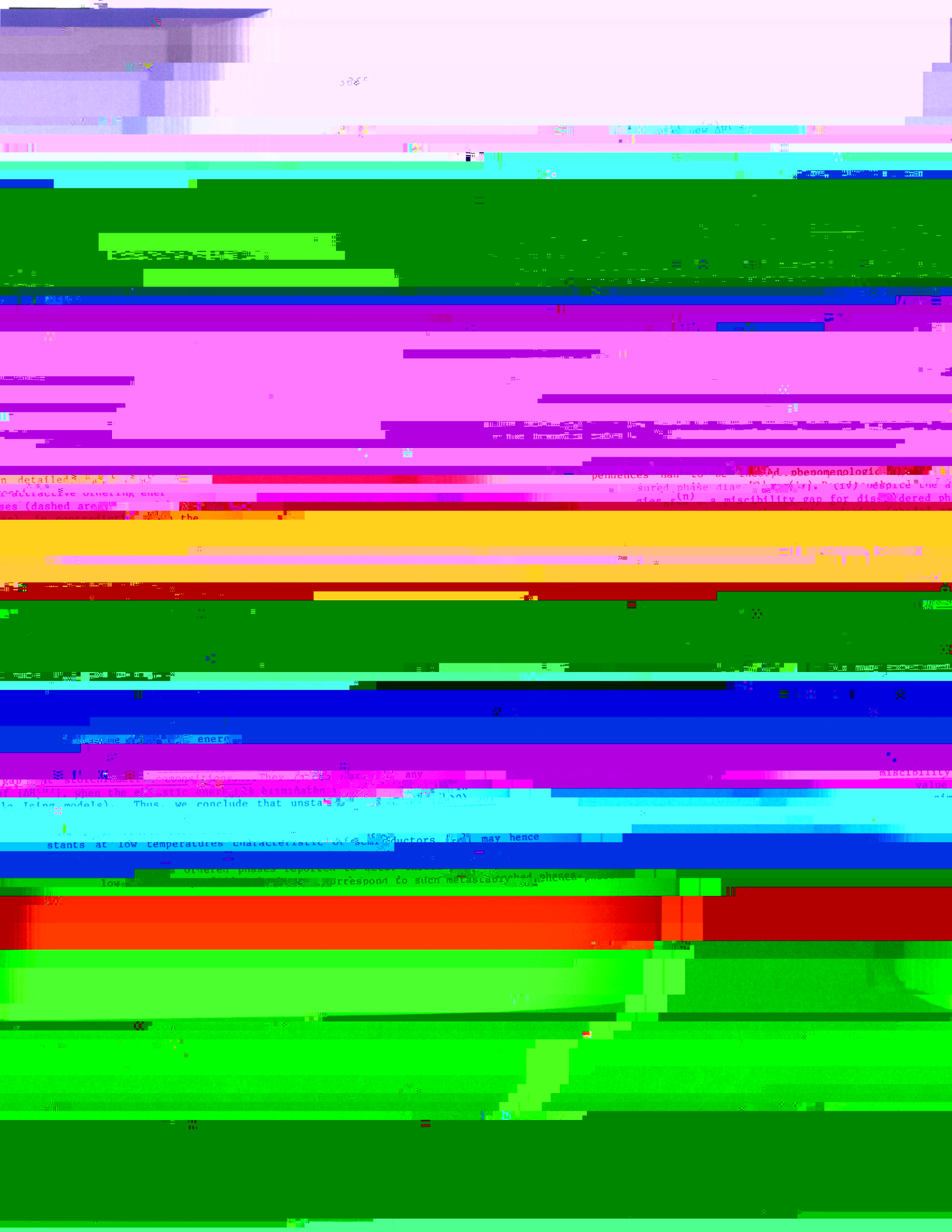
The composition ... enthalpy of formation is then ... $+ \Delta F(a_{eq}^{(n)})$, where $a_{eq}^{(n)}$ is the equilibrium lattice ... one can express the mixing enthalpy of the disordered alloy as

$$\Delta H^{(D)}(x,T) = \sum_n P^{(n)}(x,T)\,\varepsilon^{(n)} + G[a(x)] \;, \qquad (3)$$

... the av... energy and ΔF is the volume deformation energy of AC and BC to $a^{(n)}$. The two terms of Eq. (3) reflect the dual coordinates used in phenomenological models of solubility ... compound stability [1,3], and mixing enthalpies [3], e.g., the Darken-Gurray [2] and Miedema [3] models.

Many approximations have been previously adopted in treating the alloy ... the first class of models neglects ...

... to a general ...



t the new $\Delta H^{(n)}$ values produce
without any adjustment[18] of
hat the elastic energies are
Furthermore, $\Delta E^{(n)}(a)$ can
eature' missing both short-

Table 1: Components of Eq. (3) for $Ga_nIn_{4-n}P_4$ Ground-state Energies for Various pairs, lattice constants in Å.

[redacted]

[redacted]

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*Permanent address: L.P.S.E.S., CNRS, F-06560 Valb

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