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STRUCTURE AND STABILITY OF CRYSTALLINE FILLED THERMOPLASTIC COMPOUNDS

INVITED PAPER

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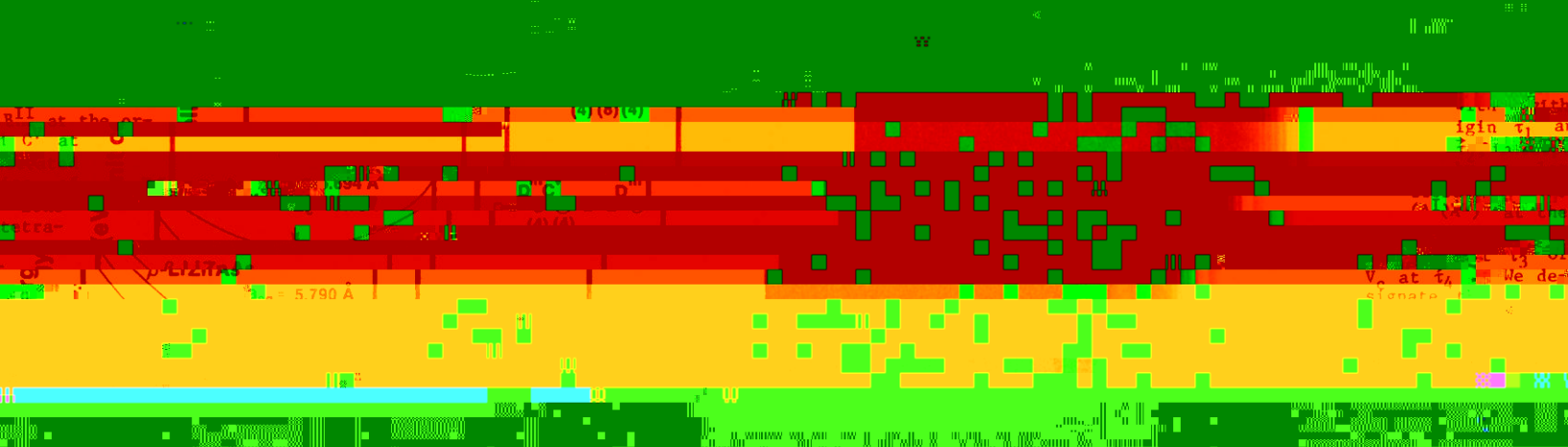
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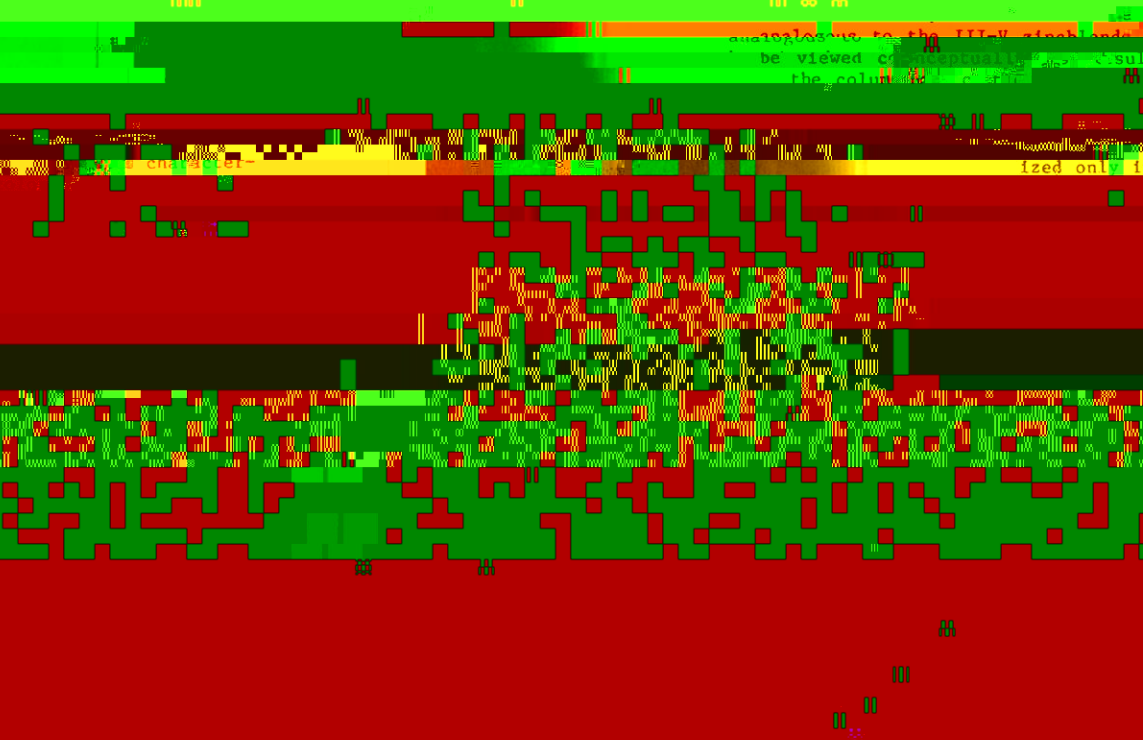
sites (e.g., the B32 Zintl compounds LiAl_2 , NaAl_2 , or the Li_2Mg alloys [6a,b,c], V_2MnAV_4 , with $V_A = \text{Co, Ni, Cu, Pd, Ag, Au, Pt, Sn, Sb, Bi}$). We refer to the structures with partially or completely occupied V_A and V_C sites as "filled tetrahedral structures" (FTS).

MOGNETIC LIZAs COMPOUNDS

The new low-temperature compounds, denoted $A^I B^{II} C^V$ (e.g., LIZAs), comprise a special class of FTS.



phase (Fig. 2). The α and β phases are distinguished by the way they can be viewed from a "nuclear disproportionation" of terms of their crystal structure.



substitution of one type of va-
round (2) ... the three phases of a prototypical
... the ...

using a recently-developed ... section ...
and the distortions induced in ...
... upon inserting the ...

primary ... showing also the equilibrium
... and 5.69Å [11]) are close to the ...
... (4) (4)

... the ... to the strain-induced ...
... ion number ...

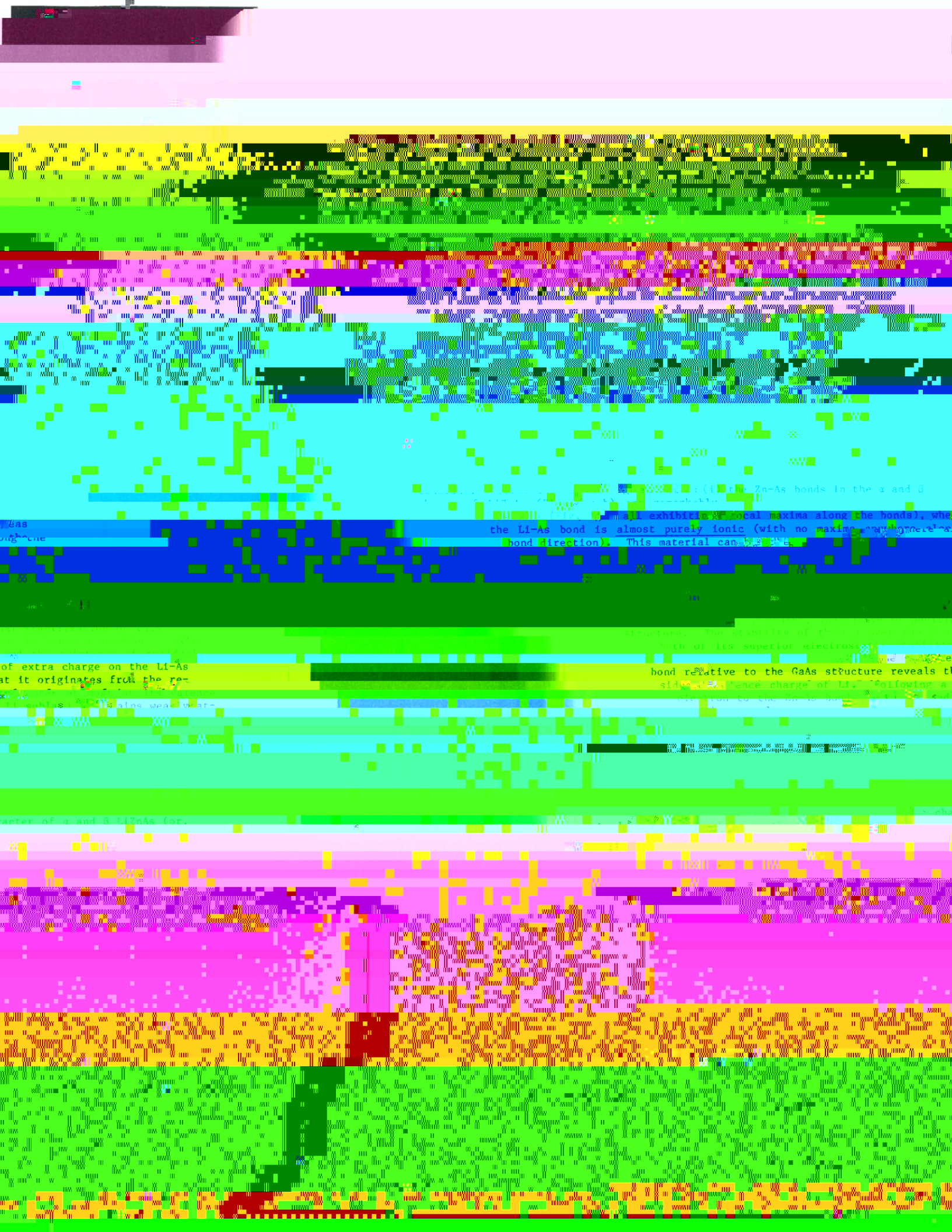


Figure 1. Crystal structure of LiZnAs (Li (red), Zn (blue), As (green)).

LiZnAs exhibits a local maxima along the bonds), while the Li-As bond is almost purely ionic (with no charge concentration along bond direction). This material can be

LiAs
bond line

Figure 1

structure, the stability of LiZnAs is due to the presence of its superior electrostatic

of extra charge on the Li-As
at it originates from the re-

bond relative to the GaAs structure reveals the
side of the "excess charge" of Li. Following a

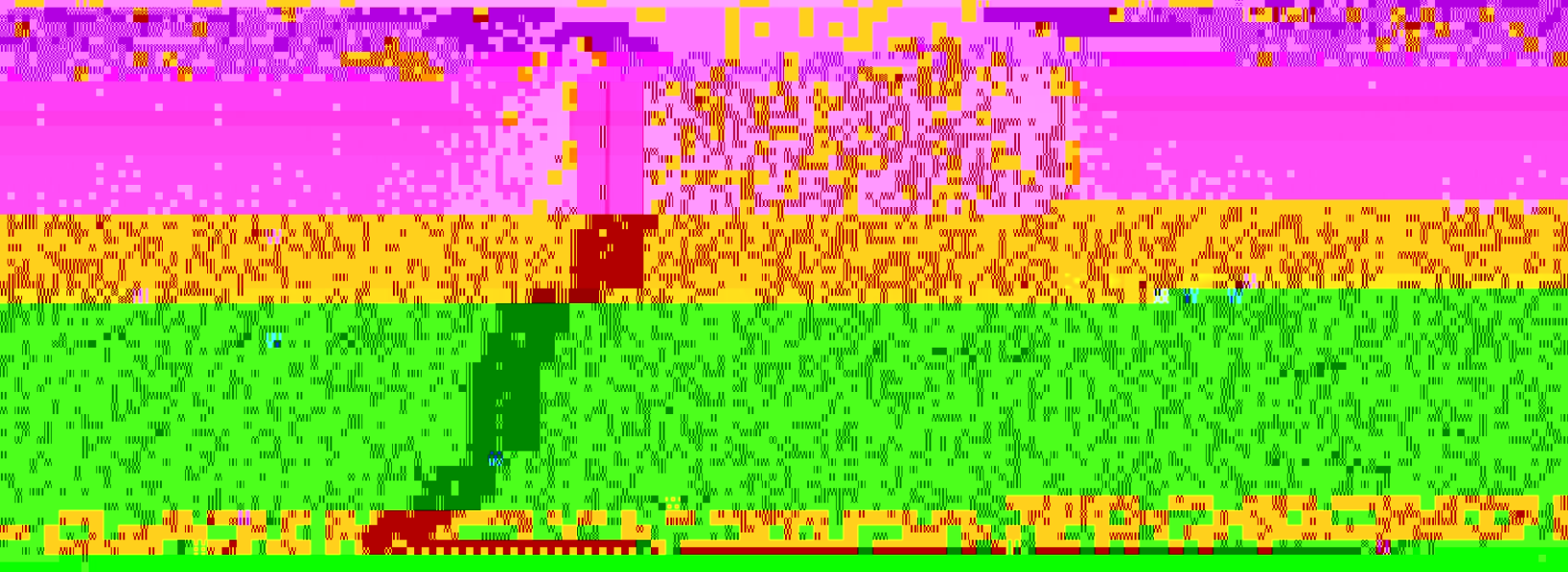
LiZnAs. The charge density

factor of a and b LiZnAs (or

Figure 2

Figure 2

Figure 2

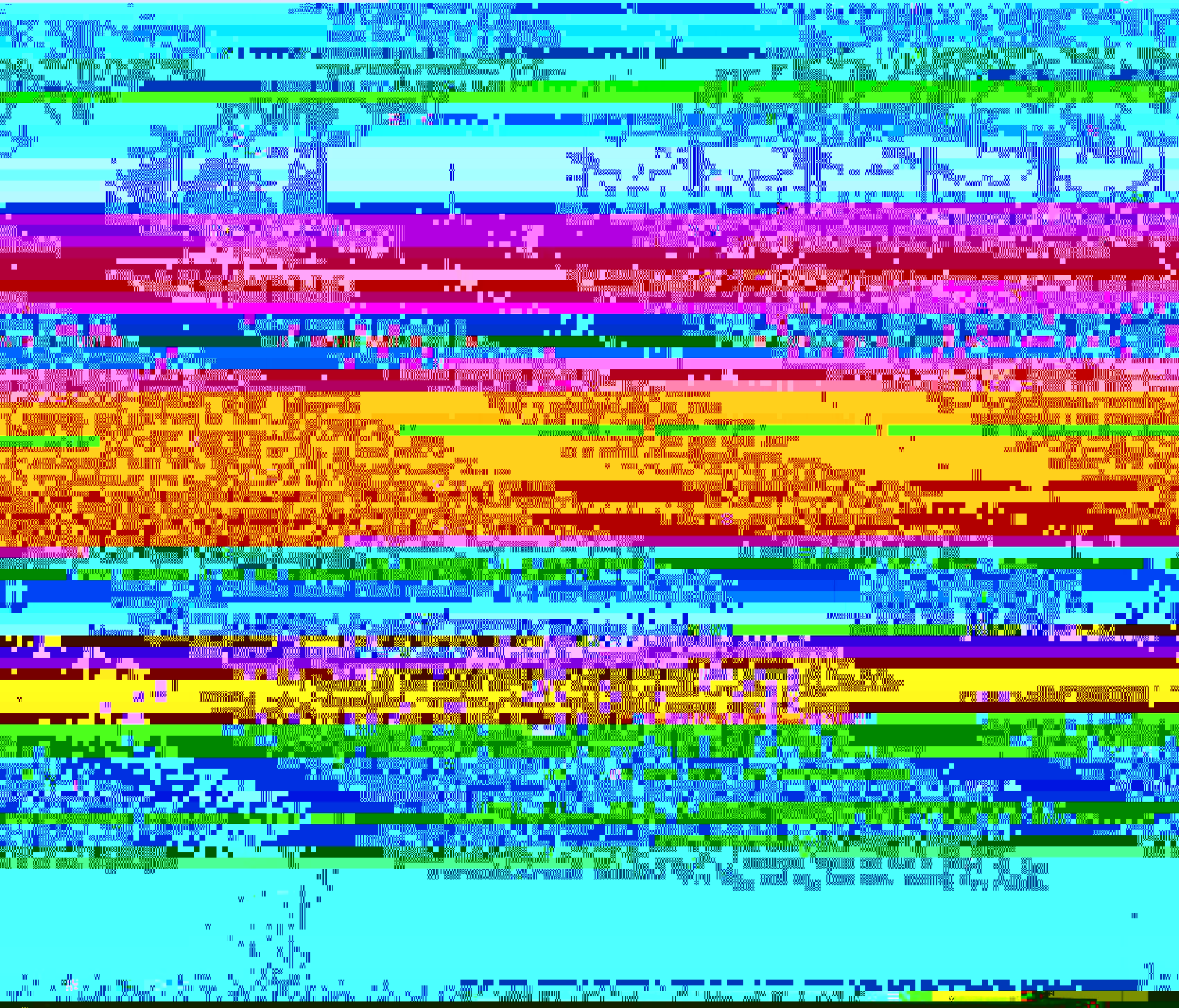


(ferritrous) transmu-
... in a two-step process.

... (y), test

The great similarity between the heat-
treatment phases and that of a III-V deserves further comment.
ionic c/s fract^{ed}

... Second, trans-
... at its interstitial lattice



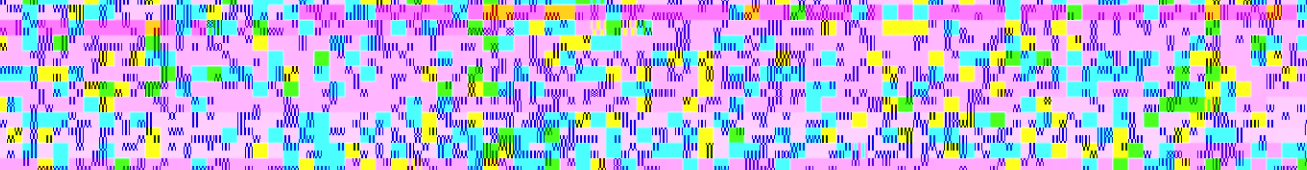
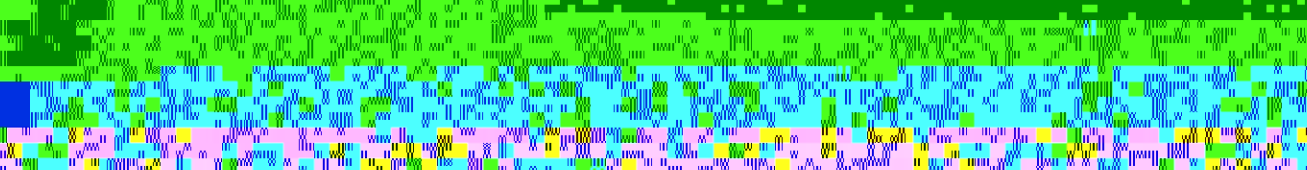
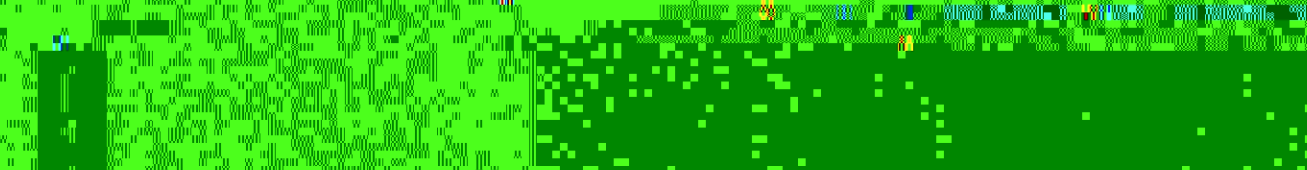
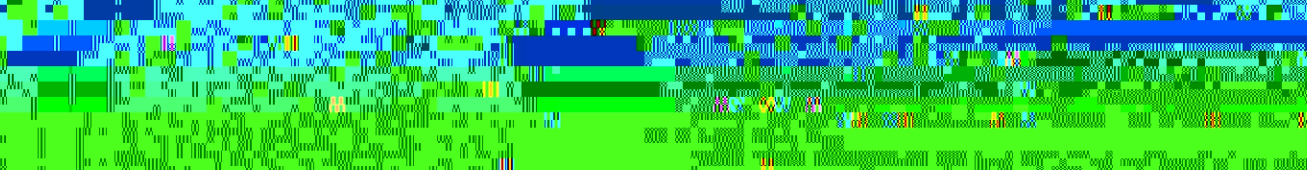
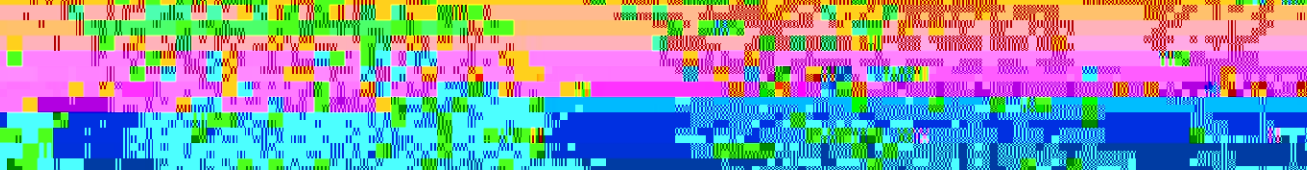
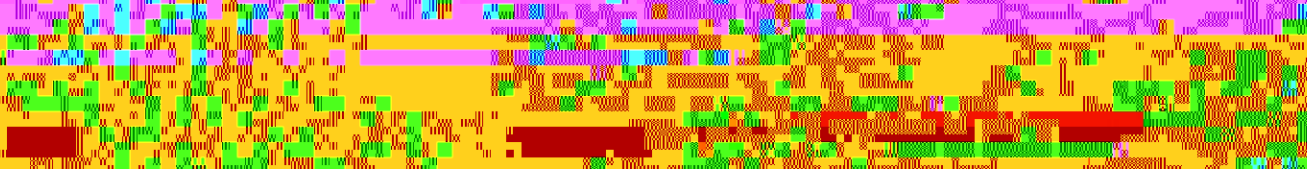
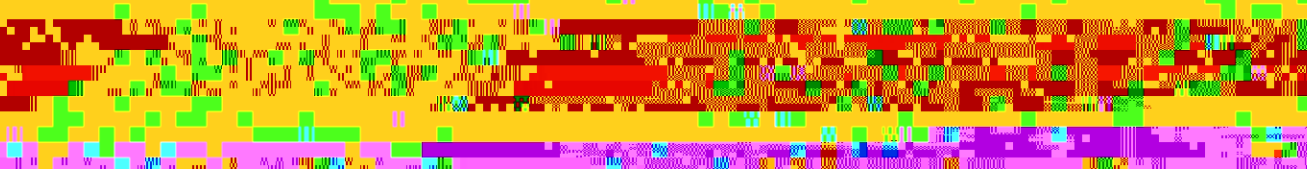
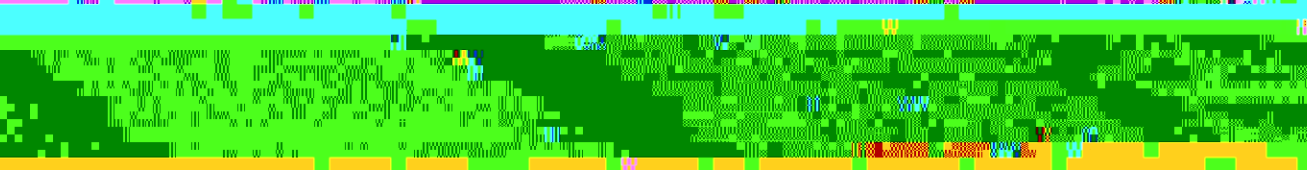
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... at its interstitial lattice

the lowest conduction bands will show extreme selectivity with respect to insertion of atoms.

case of classifying the extended conductor.

atomic-like valence band. For example,



shells with respect to

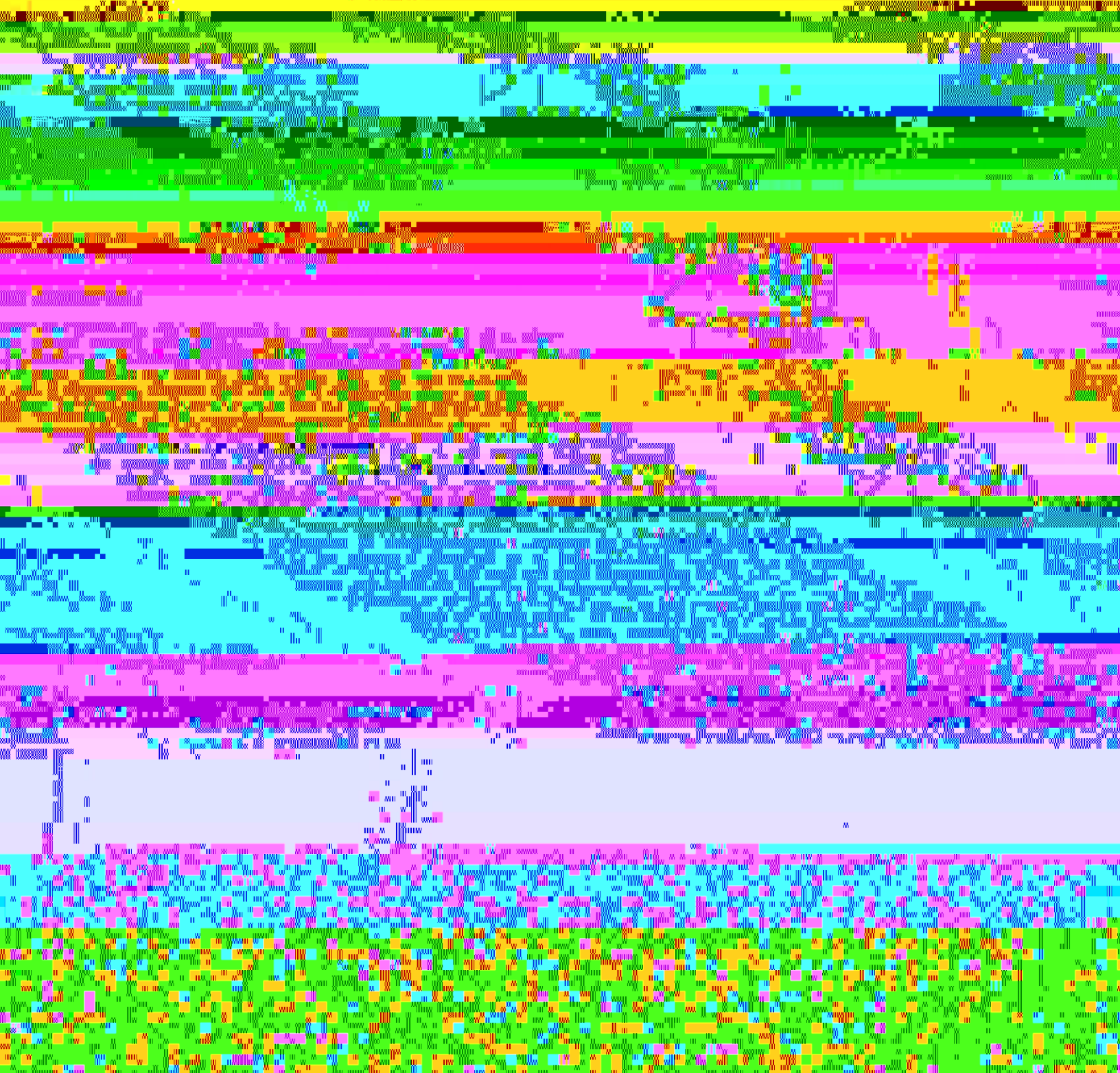
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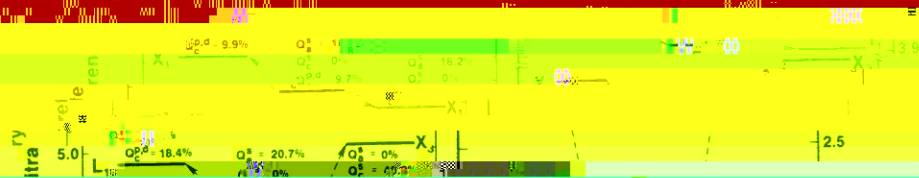
chemical zinc oxide compound

direct band gap semi-

selective

right-draining viewpoint





[1] E. Parthé, *Z. Krist.* **115**, 52, (1964), and *Austral. Chemistry and Mineral Structures*, (1964), p. 10.

[2] *Acta Cryst.* **7**, 360, (1954).

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