Quasi-crystal energy storage

What is a quasicrystal?
fixed degree of order in its structure, the discovered material was dubbed a quasicrystal.Japan is world leader in quasicrystal research, and has made significant contributions to the area. This a ticle provides an overview of the work being done in quasicrystal research and development. It serves as a follow-up to the discussi

Are quasicrystalline structures true ground states?
Traditionally,density functional theory could not describe quasicrystals as they lack translational symmetry. An ab initio approach now establishes that the quasicrystalline structures of ScZn7.33 and YbCd5.7 are true ground states.

Are quasicrystals thermodynamic or kinetic?
Central to the mystery of quasicrystals are the mechanisms governing their existence and synthesizability. Although over 100 intermetallic quasicrystals have been experimentally characterized 12,13,the thermodynamic and kinetic factors driving quasicrystal formation remain unresolved.

Are quasicrystals a new type of solid?
nce; thus,the validity of quasicrystals as a new type of solid became a subject of debate.

Is the sczn 733 quasicrystal thermodynamically stable?
Although we found the ScZn 7.33 quasicrystal to be thermodynamically stable,we show on a mixed thermodynamic and kinetic phase diagram that its solidification from the melt is limited by nucleation,which illustrates why even stable materials may be kinetically challenging to grow.

Can quasicrystal nanoparticles of increasing size be extrapolated?
Here,we perform first-principles calculations on quasicrystal nanoparticles of increasing size,from which we can directly extrapolate their bulk and surface energies.

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3D printing high-efficiency energy storage electrode provides new possibilities for the application of portable and micro devices. This paper reports the preparation of quasi-solid ...

The state of the art of quasicrystal research is critically reviewed. Fundamental questions that are still unanswered are discussed and experimental limitations are considered. Keywords: ...

Sodium-based solid-state batteries (SSBs) demonstrate great superiority in the state-of-the-art energy storage devices, whereas, their development is impeded because of the ...

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