Tentative Outline

Special Issue for RECENT PATENTS ON MATERIALS SCIENCE

Recent Patents on Complex Metallic Alloys

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Aims & Scope:

The aim of this special issue of Recent Patents in Materials Science will be to introduce the Reader to the basic mechanical, physical and chemical properties of Complex Metallic Alloys, including quasicrystals as the ultimate degree of structural complexity in metallic alloys. The way those properties can be exploited in application niches, and selected preparation routes to achieve the proper microstructure, will then be described. A summary of the relevant patents will be given in this context.

Keywords

Friction, adhesion, electronic densities of states, structural complexity, transport properties, metallurgy of CMAs, thermal memory cell, magnetically frustrated intermetallics, digital data storage, magnetic refrigeration, cooling capacity, hysteresis losses, magnetocaloric affect, microstructure, rapid manufacturing, Selective laser sintering, composite materials, quasicrystals, thin films, surface properties, Al alloys, intermetallic compounds, leaching, steam-reforming of methanol, selectivity, thermal stability, CVD, sublimation, precursors, fluidization, direct liquid injection, vapors, quasicrystals, al-based alloys, characterization, metallography, extraction.

Subtopics:

Structural complexity, properties, and application niches of Complex Metallic Alloys: a brief overview.

Complex Metallic Alloys for thermal storage of digital information.

CMAs for applications in refrigeration.

New markets for composite materials containing Complex Metallic Alloys processed by rapid manufacturing technologies.

Thin Films of Complex Metallic Alloys for Applications.

Complex intermetallic compounds used as precursors for catalysts

Solid precursor delivery systems in gas phase processes for the deposition of thin film

Contemporary approach to reliable recognition of quasicrystalline phases in Al-based alloys

Schedule: January 2015.