

**EPITAXIAL FERROELECTRIC AND MAGNETIC RECORDING STRUCTURES
INCLUDING GRADED LATTICE MATCHING LAYERS**

ABSTRACT OF THE DISCLOSURE

Epitaxial ferroelectric and magnetic recording structures having graded lattice matching layers are disclosed. A single crystal material such as Si may be used as a substrate material upon which the graded lattice matching layers are deposited. The lattice matching layers may comprise metals and metal alloys, or may comprise oxides doped with selected elements or deposited under different oxygen pressures. A recording layer, such as ferroelectric lead zirconium titanate or a magnetic Fe/Pt multilayer structure, is deposited on the graded lattice matching layers.

FIGURE 1