

# Composite Biaxially Textured Substrates Using Ultrasonic Consolidation or Bonding

## Applications:

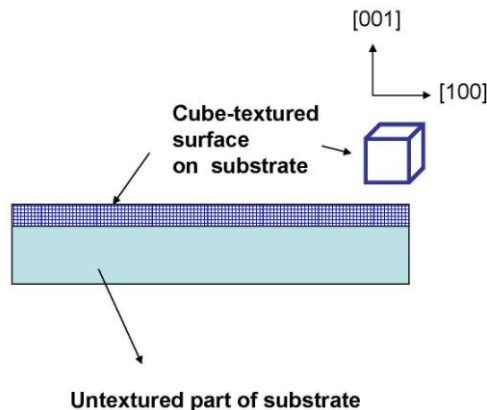
- HTS wire/cable
- Sensors used in quantum computing and medical imaging
- Fault current limiters
- HTS dynamic synchronous condensers
- Electronic filters used in cell phone call routing
- Magnetically levitated trains

## Advantages:

- Nonmagnetic substrate
- Mechanically strong substrate

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Cross-section showing the cube-textured material bonded to an untextured but mechanically strong and nonmagnetic material

## Summary:

### *Technology Description*

A novel method of manufacturing single crystal substrates for the entire array of High Temperature Superconductivity (HTS) applications. The process is based on ultrasonic bonding. The result is a mechanically strong, nonmagnetic material.

### *Technology Application*

All current HTS applications including HTS wire/cable; electronic, magnetic, and optical sensors that are used in quantum computing applications and medical imaging devices; fault current limiters that prevent power surges from destabilizing local grids; HTS dynamic synchronous condensers that maintain a near-uniform level of voltage in the power grid; electronic filters used in the base stations that route cell phone calls; magnetically levitated trains.

**Stage of Development:** Proof-of-Principle

**Patent Status:** Patent pending

**Licensing Status:** Available for licensing