Strained Silicon-on-Silicon by Wafer Bonding and Layer Transfer  
Technology #10697

Applications

- Multi-layer fabrication method of semiconductor-based substrates for electronic devices

Problem Addressed

Conventional, multi-layer silicon and germanium based substrates are complex to fabricate. The presence of an oxide layer forces process modification and reduces thermal conductivity.

Technology

This invention proposes a structure that consists of two layers formed of the same semiconducting material (e.g., Si or Ge), but having different levels of strain. The two layers can be bonded directly one to the other to maintain a strain in at least one of the layers. Parallel to the interface, the lattice spacing of the second layer is different than the lattice spacing of the first layer. High-performance transistors can be designed based on such a semiconductor-based structure.

Advantages

- Elimination of undesirable strain-inducing layers found in prior substrates

Categories For This Invention:

- Electronics & Circuits
- Semiconductors & Integrated Circuits
- Semiconductor Manufacturing

Intellectual Property:

Strained silicon-on-silicon by wafer bonding and layer transfer  
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