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(71) Applicant: **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(71) Applicant *(for MG only)*: **IBM UNITED KINGDOM LIMITED** [GB/GB]; P.O. Box 41, North Harbour, Portsmouth, Hampshire PO6 3AU (GB).

(72) Inventors: **CHU, Jack, Oon**; 44 Shelbourne Lane, Manhasset Hills, NY 11040 (US). **DIMILIA, David**; 14 Marion Avenue, Wappingers Falls, NY 12590 (US). **HUANG, Lijuan**; 98 Hillside Place #2, Tarrytown, NY 10591 (US).

(74) Agent: **LING, Christopher, John**; IBM United Kingdom Limited, Intellectual Property Law, Hursley Park, Winchester, Hampshire SO21 2JN (GB).

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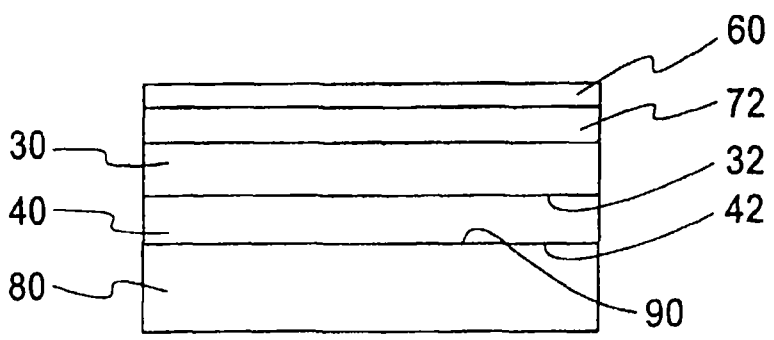
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(54) Title: LAYER TRANSFER OF LOW DEFECT SIGE USING AN ETCH-BACK PROCESS



(57) Abstract: A method for forming strained Si or SiGe on relaxed SiGe on insulator (SGOI) or a SiGe on Si heterostructure is described incorporating growing epitaxial Si1-yGey layers on a semiconductor substrate, smoothing surfaces by Chemo-Mechanical Polishing, bonding two substrates together via thermal treatments and transferring the SiGe layer from one substrate to the other via highly selective etching using SiGe itself as the etch-stop. The transferred SiGe layer may have its upper surface smoothed by CMP for epitaxial deposition of relaxed Si1-yGey, and strained Si1-yGey depending upon composition, strained Si, strained SiC, strained Ge, strained GeC, and strained Si1-yGeyC or a heavily doped layer to make electrical contacts for the SiGe/Si heterojunction diodes.

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