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(54) Title: MANUFACTURING OF NON-VOLATILE RESISTANCE VARIABLE DEVICES AND PROGRAMMABLE MEMORY CELLS

(57) Abstract: A first conductive electrode material (16) is formed on a substrate (12). Chalcogenide comprising material (22) is formed thereover. The chalcogenide material comprises A_xSe_y, A preferable being Ge and Si. A silver comprising layer (24) is formed over the chalcogenide material. The silver is irradiated effective to break a chalcogenide bond of the chalcogenide material at an interface of the silver comprising layer and chalcogenide material and diffuse at least some of the silver into the chalcogenide material. After the irradiating, the chalcogenide material outer surface is exposed to an iodine comprising fluid effective to reduce roughness of the chalcogenide material outer surface from what it was prior to the exposing. After the exposing, a second conductive electrode (26) material is deposited over the chalcogenide material, which is continuous and completely covering at least over the chalcogenide material, and the second conductive electrode material is formed into an electrode of the device.