

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202021029718 A

(19) INDIA

(22) Date of filing of Application :13/07/2020

(43) Publication Date : 21/08/2020

(54) Title of the invention : A METHOD FOR PREPARATION OF COBALT-GRAPHENE FERROMAGNETIC CONTACTS BASED SPIN-FIELD EFFECT TRANSISTORS

(51) International classification :H01L21/00
(31) Priority Document No :NA
(32) Priority Date :NA
(33) Name of priority country :NA
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :

The present invention relates to a method for preparation of cobalt-graphene ferromagnetic contacts based spin-field effect transistors. The object is to provide Datta and Das type s-FET and Back-Gate type s-FET with cobalt-graphenenano sheets based ferromagnetic electrodes. In the construction of s-FET, the Co-Graphenenano sheets based ferromagnetic electrode having Ohmic contact behavior is used. Notable value magneto resistance is obtained for both devices as a function of temperature and gate voltage. Magneto resistance monotonically reduces as temperature increases. For greater insight into about the functioning of device, spin-polarization values are estimated at different temperatures. Switching action in both the devices are analyzed and finally it is found that Datta and Das type s-FET shows appropriate switching action. Following invention is described in detail with the help of Figure 1 of sheet 1 showing Datta and Das Type s-FET structure and Figure 2 of sheet 2 showing back-gate type s-FET structure.

No. of Pages : 25 No. of Claims : 3