

Prospects and Challenges of Graphene FETs

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Abstract:- Graphene is a new carbon-based purely two-dimensional material exhibiting a series of exotic properties with ultra-high carrier mobility exceeding those of the conventional semiconductors. Such high carrier mobility has motivated intensive research in almost all branches of electronics. Nonetheless, the Field Effect Transistors (FETs) have remained at the primary focus of graphene device research and development. No doubt graphene emerged with tremendous potentials for the electronics industry. But it has never been a simple task to peel flakes of graphene and put them in place at the channel region of the FETs. Here in this DL Talk, first we try to get an overview of the prospects that graphene possesses for the electronics industry. The issues involved in harnessing the potentials are many-fold. The pros and cons of different issues will be presented. The trade-off among different issues will be scrutinized. The technological challenges to realise the practical devices will be reviewed. The state-of-the-art performances of graphene FETs will be unfolded. Some new directions in the development of Graphene FETs (GFETs) will also find place.