MoS_2 growth and device technology implementing high-k dielectrics; towards integration with multiplexed graphene sensors arrays

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2D semiconductors are of paramount importance for More Moore and More-than-Moore applications. This poster presents an overview of the technology challenges, with a special focus on the high-k dielectric integration, for developing efficient and reliable MoS_2 Field Effect Transistors (FETs), towards the monolithic integration of MoS_2 FETs with multiplexed graphene sensors on flexible probes for biomedical applications.

References

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Figures

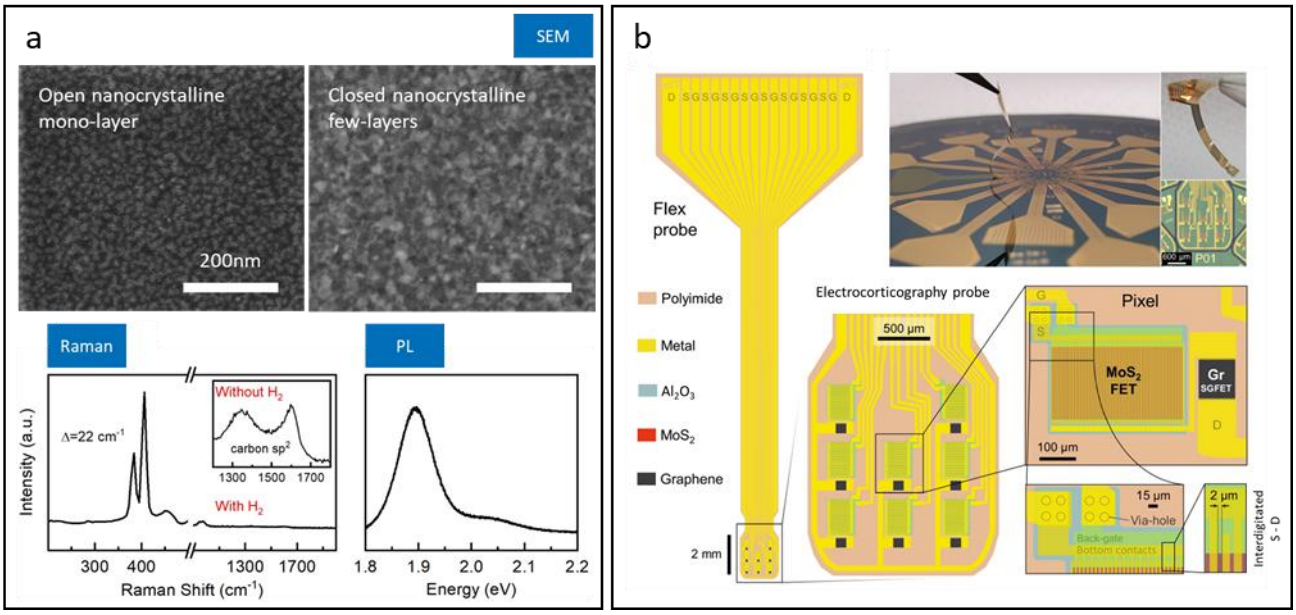

Figure 1: a) Material characterization of the MoS_2 grown on SiO_2 by Metal-Organic Chemical Vapor Deposition using molybdenum hexacarbonyl and diethyl sulfide as precursors, and hydrogen gas to reduce the carbon incorporation mainly introduced by diethyl sulfide. **b)** Illustrations and pictures of the monolithic integration of MoS_2 FETs and graphene solution gated FETs on a flexible probe for high density neural recordings.