

Exploring the Industrialization Path of Graphene: from Lab to Fab

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Although graphene has excellent performance and unique functions, it needs to be integrated with other industries for development in order to better and faster unleash its industrial value. In recent years, with the development and progress of graphene preparation technology and application technology, graphene has gradually been applied and promoted in more downstream products and fields. The main products that have achieved good applications and commercial value include graphene conductive agents and their application in lithium-ion batteries, graphene electric heating elements and their application in floor heating, home appliances, wearable physical therapy protective equipment, etc., graphene thermal conductive film and its application in electronic products such as mobile phones, graphene printed antenna and its application in RFID. These graphene products show that China has achieved good results in the commercial application of graphene, reflecting the empowering role of graphene in the transformation and upgrading of traditional industries. Graphene technology innovation and industrial development continue to heat up, and it is expected to be applied in the manufacturing of super copper, electronic devices, and other industries in the future. However, the large-scale production and application of graphene materials still face challenges, mainly focusing on green manufacturing processes, production costs, quality stability, and other aspects. The widespread application of graphene will require addressing issues such as manufacturing technology, manufacturing costs, and surface modification, and combining them with other materials and technologies to achieve greater market influence and commercial success. The speaker further points out that building a "from lab to fab" innovation platform will be conducive to accelerating the commercialization of achievements. The speaker will share the progresses of China National Graphene Innovation Center in key common technology innovation, technology transfer, and first commercialization of the graphene industry in China.

References

[1] Xiaoyue Xiao,* Yichun Li,* and Zhaoping Liu,* Nature Materials 15(2016)697.

Figures

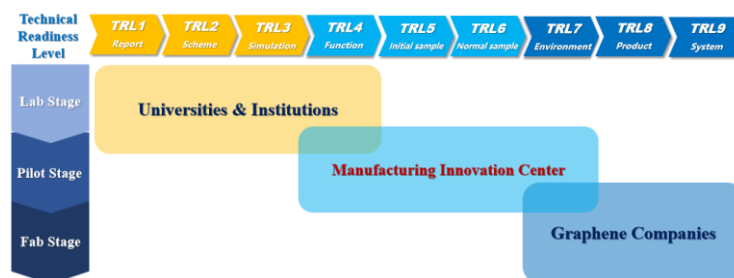


Figure 1: the "from lab to fab" functional positioning of manufacturing innovation center in China