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Graphene Commercialization Challenges and Opportunities: A Graphene Producer's Perspectives

Dr. Jang filed his first patent application on graphene as early as October 2002 [1]. Dr. Jang and his business partner, Dr. Aruna Zhamu, co-founded Angstrom Materials, Inc. (AMI) in 2007. Angstrom is currently the largest producer of single-layer graphene oxide. As a pioneer in graphene technology, Dr. Jang will offer some personal perspectives on the rapidly emerging graphene industry, emphasizing the opportunities and challenges in commercializing graphene materials and products.

- This presentation will begin with a brief definition of graphene materials, trying to clarify some of the confusion and inconsistency in nomenclature of graphene.
- This will be followed by a brief review of the most promising mass production processes for graphene materials, including both pristine graphene and graphene oxide.
- The technical and commercial challenges experienced by graphene producers will be high-lighted. For instance, a significant challenge is the

notion that graphene is a unique material that requires different processes to bring out the most desirable characteristics for a desired application. In other words, different processes are required to produce different types of graphene materials for different applications in different market sectors.

- There are also technical, economical, and regulatory issues that must be addressed in order for the large-scale production of affordable graphene materials to be fully realized.
- This will be followed by a discussion of some of the potential and realized applications of graphene materials, including supercapacitors, batteries, and functional composites.

References

- [1] B. Z. Jang and W. C. Huang, "Nano-scaled Graphene Plates," US Patent Application No. 10/274,473 (submitted on 10/21/2002); now U.S. Pat. No. 7,071,258 (issued 07/04/2006).