

You are cordially invited to attend this seminar to be held on

2D Atomic-Films: How do they grow?

Wednesday, January 21st, 16:00

Room 101, Engineering Class (Kitot) Building

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The interest in 2D layered materials has been renovated with the successful isolation of single- and few-layer graphene in 2004 and the elucidation of its wonderful electronic properties. Since then, the research on graphene and other atomic-films, such as hexagonal boron nitride (h-BN), boron-carbon-nitrogen (BCN), transition metal dichalcogenides (TMDs), topological insulators, etc. has been exponentially increased and new interesting phenomena and applications were demonstrated. The intense study of the growth mechanism of graphene has enabled today the growth of millimeter-size single-crystal and single-layer graphene domains. This was achieved by understanding the basic processes taking place during the growth. Little is known, however, about the growth mechanism of other 2D layered atomic-films. The ability to synthesize large-area and high quality 2D atomic films is a prerequisite for their successful integration into a wide variety of applications, such as nanoelectronics, nanoelectromechanical systems, flexible and transparent devices, electro-optics, renewable energy, catalysis, etc.

In this talk I will describe the growth mechanism of single and few-layer graphene and hexagonal boron nitride (h-BN) films while pointing out the similarities and differences of these unique materials. Emphasis will be given to the challenging characterization of these few-atom thick films. I will finalize by explaining the research topics in the 2D materials' lab.

Biosketch



Dr. Ariel Ismach joined the Materials Science and Engineering at Tel Aviv University in October 2010 and he is the head of the 2D materials lab. He received his B.Sc. from the Ben-Gurion University in Materials Science and Engineering, M.Sc. and Ph.D. from the Weizmann Institute in Chemistry. He received the Ph.D. student prize from the Israel Chemical Society in 2008 for developing novel approaches for the guided growth of carbon nanotubes. He was a postdoctoral fellow at the University of California at Berkeley and the Lawrence Berkeley National Laboratory, and at the Prof. Ruoff's group at the University of Texas at Austin.