



Kennedy Labs announces the successful completion of ALD metal and graphene deposition and work at the Barry Lab at Carleton University, in Ottawa, Canada.

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Kennedy Labs, a Canadian nanofabrication company producing 2D materials and related sub-components for industrial devices and systems, announces the successful completion of the first phase of research and development work on the atomic layer deposition (ALD) of metals and graphene for microelectronic and electro-acoustic applications.

Funded in part by an Engage grant from the National Science and Research Council of Canada (NSERC), research and development work was carried out at the Barry Lab at Carleton University (<https://carleton.ca/barrylab/>). Dr. Seán Barry leads the Barry Lab, a research team which focuses on inorganic and physical chemistry as it relates to chemical design and mechanistic properties of atomic layer deposition. Dr Peter Gordon carried out ALD experiments for Kennedy Labs.

Today, rolled metal processes can have difficulty getting below 50 micron thicknesses, which can lead to prohibitive costs and unwanted mass in very small microelectronic and electro-acoustic applications. "Unlike rolled layers, chemical vapour deposition (CVD) or physical vapour deposition (PVD) processes, the process of ALD allows us to create extremely thin and highly tunable metal laminates (in the order of nanometers), that have performance and miniaturization due to their thinness and laminar construction" said Dr. Dolf Landheer, Kennedy Labs' Chief Scientist.

As consumer, medical, space and industrial applications continue to shrink while delivering increased performance and lower costs, nanolaminates are increasingly valuable in the smallest, longest life and highest performance settings. "In the case of thermal spreaders for high power gallium nitride semiconductor die, we can tune coefficients of thermal expansion (CTE) while preserving thermal conductivity, and allow chip makers to drive devices harder and increase efficiency", said Brian Kennedy, company President. "Or, in the case of electro-acoustic membranes, we can tune the laminate for high strength and low mass, and deliver better microphone sensitivity or cellular phone speaker performance. This can be done quickly at low temperatures, on a wafer or roll to roll scale".

Engineering samples of first generation nano-laminate will be available in 2018 through Digi-Key (<https://www.digikey.com/en/supplier-centers/k/kennedy-labs>). Kennedy Labs and the Barry Lab expect to continue deposition research and development work in the future. For further information please inquire at info@kennedylabs.tech.