



Direct Atomic Layer Processing (DALPTM)

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Abstract

This presentation will introduce the unique patent pending technology being commercialized by ATLANT 3D: Direct Atomic Layer Processing (DALPTM). This Lithography-less processing technology provides digitally controlled deposition, etching, cleaning, and other processing steps with a variety of materials. The technology is being applied to semiconductor devices, packaging, MEMS, optics, photonics, sensors, etc. Being a digital processing technology, materials are utilized only in the programmed areas, hence reducing the consumption. This yields not only a major reduction of the materials impact in the environment, but also enables the use of materials that otherwise would be too expensive to use. Furthermore, sequential deposition of different materials is a natural processing step, so that localized functional devices can be fabricated a part of the complete semiconductor chip. This also results in reducing the factory capital and overhead costs.

Bio:

Dr. Jaim Nulman is the Chief Product Officer for ATLANT 3D and the President of the USA subsidiary. Dr Nulman has over 35 years' experience in the field of commercializing manufacturing equipment for the high-tech industry including semiconductors, additive manufacturing for electronics, renewable energy generation and storage, and others. He is the former CTO for Nano Dimension, a company commercializing additive manufacturing for electronics and other markets. He was responsible for the development of systems, materials, and applications resulting in, within many others, the successful introduction of a 24/7 fabrication product, technology that replaces the conventional interlevel vias by a 3D connectivity that yields unprecedented high speed and RF performance, successful delivery, and retrieval of an electronic board to the ISS, and new 3D packaging. Dr. Nulman was a Vice President of Applied Materials in several corporate and product division positions. Within his roles, included being a key team member that commercialized the Endura PVD system, one of the most successful semiconductor manufacturing product reaching market share from 0 to over 60% in less than 5 years. Dr. Nulman was a research associate at the Submicron center at Cornell University pioneering rapid thermal processes with reactive gases for MOS devices. Dr. Nulman is a senior member of IEEE, specifically the electron devices, photonics, and packaging societies. He has over 100 publications, and over 50 patents. He holds a BSc from the Technion- Israel Institute of Technology, a MSc and PhD from Cornell University, and an Executive MBA from Stanford University.