**Atomic layer deposition – a scalable coating technology for battery materials**

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**Extended Abstract (ten page maximum):**

As a self-limiting and sequential thin film deposition technique, atomic layer deposition (ALD) enables very thin and highly uniform coatings in sub-nano scale. Blocking of open pores, inhomogeneous coating patterns as well as uncontrolled growth rates can be avoided, which are typically observed in other gas and liquid-phase coating technologies. At industrial-scale, ALD is typically applied for planar structures and substrates but not for particulate solids. In order to exploit the full potential of this technology and maximize the material performance, e.g. of cathode active materials (CAM) for Li-ion batteries, a scalable and robust process technology is required. In this talk we report on aspects of process engineering and their impact on design and scalability. Process-structure-performance relationship is presented for alumina-coated CAM by using Trimethylaluminum and water vapor as precursors. The post-processing of ALD-coated battery materials to final electrodes is also addressed. Profound process know-how in electrode manufacturing on a roll-to-roll coating unit is required to prevent performance deterioration that might be induced during drying of e.g. thick electrodes for increased energy density.