

# Atomic Layer deposited thin coatings for Secondary Electron Emission yield optimization

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Multipacting in particle accelerator elements is a major challenge. Multipacting is strongly dependent on the surface total electron yield (TEEY). Developing thin coatings to reduce it is of critical importance. The surface dissipation induced by RF fields is also a critical parameter and the thin film electrical conductivity has to be tuned accordingly. For each application, an optimal set of TEEY and conductance values is required. In order to control both independently, a solution is to develop a heterostructure based on the mixing of a low TEEY, electrical conductor material with a high TEEY, dielectric material to obtain, for instance, a low TEEY, dielectric coating that will prevent both Multipacting and an increase in surface losses. We will present results obtained with Atomic Layer Deposited coatings made of layers of ZnO and MgO to verify that this solution is relevant. Measurements show that TEEY and conductivity vary according to coating structure and composition.

## Alternate track

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Yes

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