Photocathode Materials and Science: Methods and Goals

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Photocathodes are the source of choice for most high brightness accelerator applications, from ultrafast electron microscopy to free electron lasers. Photoinjectors provide the ability to control the beam spatial and temporal profile as required by the application, and potentially allow very low emittance beams.

This course will focus on the connection between the intrinsic emittance of a photocathode, and the material properties of the film. Much has been learned about how to engineer the growth of these materials to achieve specific response properties, including low emittance and prompt temporal response. The course will also cover the materials techniques used to do this development – because there is a lot more to do!