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## Studies for the CLIC TBM BLM System

*Thursday 7 June 2012 09:30 (30 minutes)*

The CLIC 21 km main linac and corresponding 24 drive beam decelerators are arranged into modular structures referred to as the 'two beam modules'. The baseline technology choice for the CLIC Beam Loss Monitoring system (as presented in the conceptual design report) is based on ionization chambers for the two beam modules. However, a more cost effective BLM design, based on Cherenkov light generated in optical fibers is being investigated. A model for light production and propagation has been developed and validated with measurements. Monte Carlo simulations of loss scenarios in the CLIC tunnel have been performed, to determine the suitability of an optical fiber system in terms of sensitivity and dynamic range.

The ability to distinguish between losses from each of the two beams will also be presented. Issues specifically related to the use of Cherenkov fibers such as the achievable longitudinal position resolution for long pulses and radiation hardness will be discussed.

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**Session Classification:** Failure detection