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Characterisation and temperature stabilisation of a system with 22000 MPPCs

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The construction of a highly granular scintillator-tile calorimeter with 22000 MPPCs required new approached to quality control and provided both test bench and in-situ data for the characterisation of a large sample of photo-sensors. Thanks to the excellent uniformity of device parameters, it was possible to stabilise the MPPC responses in the presence of temperature variations by automatic adaptations of the bias voltage on the basis of regular temperature measurements. The talk will present the approach to parameter monitoring during the construction phase, in-situ characterisation results and report the experience with the implementation of automatic temperature compensation at system level.

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