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## **MuPix chips, mechanics and cooling systems of Mu3e experiment**

*Thursday 17 October 2019 09:00 (22 minutes)*

Mu3e is an upcoming experiment at Paul Scherrer Institut in the search for the strongly suppressed decay of  $\mu \rightarrow e e e$ . It will use an ultra-lightweight silicon pixel detector using thinned HV-CMOS MAPS chips. Untriggered, zero-suppressed, always-on operation is needed for observing random decays of muons at rest with a decay rate of  $10^{-8}$ - $10^{-9}$  decays per second. More than 1 m<sup>2</sup> of instrumented surface will produce about 3 kW of heat ( $\leq 250$  mW/cm<sup>2</sup>). Traditional cooling approaches are in conflict with the low-mass requirements, hence a gaseous helium flow cooling system will be implemented. This talk will give a report on the chip status, the mechanical design challenges with our solutions and the results of our comprehensive cooling studies performed recently.

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