

# Liquid scintillator tiles for high radiation environments

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## Abstract

Future experiments in high energy and nuclear physics may require large, inexpensive calorimetry that can operate to doses of 50 Mrad or more. We present the results of a study of a scintillator tile based on EJ-309 liquid scintillator using cosmic rays, test beam, and  $^{60}\text{Co}$  irradiations.

*Keywords:* organic scintillator, liquid scintillator,, radiation hardness, calorimetry

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## 1. Introduction

Sampling calorimeters using scintillator tiles with wave length shifting fibers, such as the CDF plug calorimeter [? ], are popular due to their excellent performance at a reasonable cost.

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5    **2. Tile design**

**3. Test beam results**

**4. Light yield dependence on tile parameters and comparison with  
          simulation**

**5. Radiation hardness tests**

10   **6. Conclusions**

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**References**