# Running GEANT4 Functions on a GPU

## Discussion of Results

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# Overview

# Brief Project Overview

# Stakeholders

# What is GEANT4

# What is GP-GPU

# Scope

# Purpose

# Why G4ParticleHPVector

# Two Implementations

- Run everything on the GPU
- Only select functions run on GPU

# Completely on GPU

- The vector is stored exclusively on the GPU
+ Do not have to maintain a copy of the vector on the CPU
+ Do not have to maintain the hashed vector
+ Reduces how much is being copied to the GPU
– All functions are run on the GPU

# Intensive Functions on GPU

# Performance Results

# Performance Discussion

# Accuracy

# Testing

# Implementation 2

+ Only functions that run faster on the GPU are implemented
+ Not forced to run functions that run slowly on GPU
– Will have to maintain two copies of the vector
– More copying the vector to and from the GPU

# Intensive Functions on GPU

# Performance Results

# Performance Discussion

# Accuracy

# Testing

# Summary of Results

# Recommendations