

2024 천문우주과학과 세미나

**SEMINAR IN**  
**ASTRONOMY &**  
**SPACE SCIENCE**

**MONDAY, 15 JANUARY 2024**

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**Title :** New Geant4 model to simulate  
ultra-thin crystalline electromagnetic  
calorimeters for novel gamma-ray  
space telescopes

**16:00 PM, 자연과학대학 4호관(W11-2) 216호**

# ABSTRACT

Ultra-thin electromagnetic calorimeters exploiting electromagnetic processes in oriented crystals [1, 2] is a smart solution for gamma-ray space telescopes opening wide prospects for gamma-ray astronomy, in particular for the search of dark matter annihilation. Namely, these calorimeters allow to considerably reduce both the dimension and weight of gamma-ray space telescopes as well as to make available for direct observation ultra-high energy gamma-rays up to TeV scale. This application requires reliable Geant4 simulation model of electromagnetic showers in oriented crystals. We present a new simulation model of electromagnetic processes in oriented crystals [3] implemented into Geant4-11.2.0. We validate the model with the experimental data as well as discuss our first steps towards full-simulation of the gamma-ray space detector.