



**Poster #: 207**



# BACKGROUND SUPPRESSION IN THE COSINUS EXPERIMENT: ACTIVE MUON VETO AND RADIOPURE MATERIALS SELECTION

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- THE GOAL OF THE COSINUS (CRYOGENIC OBSERVATORY FOR SIGNATURES SEEN IN NEXT-GENERATION UNDERGROUND SEARCHEs) EXPERIMENT IS TO PERFORM A MODEL-INDEPENDENT TEST OF THE DAMA/LIBRA DARK MATTER CLAIM
- BACKGROUND IN COSINUS COMES FROM: NAI CRYSTAL CONTAMINATION, RADIOGENIC CONTAMINATION OF SHIELDING AND CRYO-COMPONENTS, AMBIENT GAMMAS AND NEUTRONS AND COSMOGENIC NEUTRONS ARE PRODUCED BY MUON-INDUCED SPALLATION
- BACKGROUND CAN BE MITIGATED THROUGH MATERIAL SELECTION, PASSIVE AND ACTIVE SHIELDING
- FOR ACTIVE SHIELDING A WATER CHERENKOV MUON VETO HAS BEEN SIMULATED. RESULTS SHOW:
  - 99% EFFICIENCY AT TAGGING MUONS
  - 70% EFFICIENCY AT TAGGING SHOWER EVENTS