

EXCESS25@LTD

Saturday 31 May 2025 - Saturday 31 May 2025

Book of Abstracts

Contents

Introduction	1
Low Energy Excess in CRESST	1
New results on the LEE from the NUCLEUS experiment	1
New Insights Into Low Energy Excess Noise: Scalings and Sources Below 10 eV	1
TBD	1
Observing the Low Energy Excess using SuperCDMS-HVeV detectors	1
Investigating EXCESS with Magnetic Phonon Sensors and Superconducting Tunnel Junctions	1
New results from BULLKID	2
EXCESS: Devices, Observations, Outlook	2
Correlated and Quasiparticle-induced Errors in Superconducting Quantum Processors	2
DELIGHT's Approach to tackle Low-Energy Excess (LEE)	2
Origins of Fluctuations in Superconducting Nanowires	2
Summary of Low Energy Backgrounds in CCDs	2
Dark counts in optical superconducting-transition edge sensors for rare events	2
Evaluating Low-Energy Excess Events with 1 eV Threshold Superconducting Tunnel Junction Sensors	3
Superconducting Quasiparticle-Amplifying Transmons	3

Talks / 1

Introduction

Talks / 2

Low Energy Excess in CRESST

Corresponding Author: francesca.pucci@cern.ch

Talks / 3

New results on the LEE from the NUCLEUS experiment

Corresponding Author: elisabetta.bossio@tum.de

Talks / 4

New Insights Into Low Energy Excess Noise: Scalings and Sources Below 10 eV

Corresponding Author: michaelwilliams@lbl.gov

Talks / 5

TBD

Talks / 6

Observing the Low Energy Excess using SuperCDMS-HVeV detectors

Corresponding Author: kylekennard2027@u.northwestern.edu

Talks / 7

Investigating EXCESS with Magnetic Phonon Sensors and Superconducting Tunnel Junctions

Corresponding Author: kim90@llnl.gov

Talks / 8

New results from BULLKID

Corresponding Author: giorgio.delcastello@roma1.infn.it

Talks / 9

EXCESS: Devices, Observations, Outlook

Corresponding Author: felix.wagner@phys.ethz.ch

Talk by organizers:

- We give a short introduction to the technologies and processes relevant to the workshop,
- summarize observations that were described in literature,
- and provide an outlook on open questions that are currently studied or interesting to investigate with future experiments.

Talks / 10

Correlated and Quasiparticle-induced Errors in Superconducting Quantum Processors

Talks / 11

DELIGHT's Approach to tackle Low-Energy Excess (LEE)

Talks / 12

Origins of Fluctuations in Superconducting Nanowires

Talks / 13

Summary of Low Energy Backgrounds in CCDs

Corresponding Author: abotti@fnal.gov

Talks / 14

Dark counts in optical superconducting-transition edge sensors for rare events

Corresponding Author: laura.manenti@sydney.edu.au

Talks / 15

Evaluating Low-Energy Excess Events with 1 eV Threshold Superconducting Tunnel Junction Sensors

Corresponding Author: friedrich1@llnl.gov

Talks / 16

Superconducting Quasiparticle-Amplifying Transmons

Corresponding Author: cwfink@lanl.gov