

# Time-based event discrimination methods for solar neutrino analyses in the SNO+ liquid scintillator phase

Friday, 21 June 2024 17:30 (2 hours)

SNO+ is a multi-purpose neutrino detector located 2 km underground at SNOLAB, Canada. The experiment is in operation with 780 tonnes of liquid scintillator as its target mass. The high light yield, low background levels, and planned long-term operation make SNO+ suitable for precision measurements of high energy solar neutrinos ( $E > 5$  MeV) and provide the opportunity to detect low energy solar neutrinos. Exploring the time profile of the scintillator light allows to access a wide range of information about the events in the detector, providing powerful tools to discriminate between backgrounds and solar neutrino signals. This poster will present the time-based event discrimination methods under development by the SNO+ collaboration, including event-by-event directionality that has recently been published. These methods are being optimized to maximize signal-to-background for solar neutrino (and for all) analyses.

## Poster prize

Yes

## Given name

Ana Sofia

## Surname

Inacio

## First affiliation

University of Oxford

## Second affiliation

## Institutional email

ana.carpinteiroinacio@physics.ox.ac.uk

## Gender

Female

## Collaboration (if any)

SNO+

**Primary authors:** INACIO, Ana Sofia (University of Oxford); Mr HUNT-STOKES, Rafael (University of Oxford)

**Presenters:** INACIO, Ana Sofia (University of Oxford); Mr HUNT-STOKES, Rafael (University of Oxford)

**Session Classification:** Poster session and reception 2

**Track Classification:** Solar neutrinos