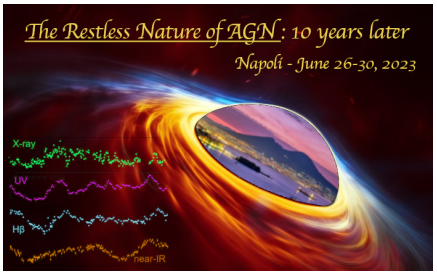

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AGN in the La Silla QUEST Variability Survey

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The La Silla QUEST (LSQ) supernova survey ran for 6 years on the ESO 1m Schmidt telescope at La Silla Chile, using a large CCD array to replace the photographic plate of the Schmidt. The survey imaged ˜1000 degrees twice per night using a single broad V band filter, covering a total area of ˜25,000 square degrees from declination ˜ -80 to +25 degrees. The survey magnitude limit is V˜21 in a single 60 second exposure, with an average of ˜200 visits for any given patch of sky and over one thousand square degrees of sky covered by more than 1000 visits. Systematic photometric errors from the current differential photometry pipeline are at the 5-10 mmag level for bright point sources on a good night, with further improvements expected. The QUEST V filter can be absolutely calibrated against SDSS and PanSTARRS g+r data at the percent level, enabling LSQ, for example, to extend in time the SDSS Stripe 82 variability survey. Although principally designed to find supernovae, the strict survey cadence provides good logarithmic time coverage on timescales from ˜30 minutes to ˜years, ideal for probing AGN variability and constraining, for example, the parameters of a Damped Random Walk model. We present some highlights of LSQ AGN science. The LSQ dataset should prove useful as a training set to prepare for LSST. Over 1 million LSQ-selected AGN candidates will also be followed up by the upcoming ESO 4MOST survey.

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