**Proponenti: G.Longo, M.Paolillo, G.Covone (Proposte di Tesi in collaborazione con il Dott. M.della Valle, INAF-OAC)**

**Contatti**: longo@na.infn.it, paolillo@na.infn.it, covone@na.infn.it

**Titolo**: "*Detection of transient events in a Supernova search*"

**Descrizione**: The search and characterization of transient events is fascinating research field in Astronomy. Supernova Diversity and Rate Evolution (SUDARE) is a survey targeting medium-redshift galaxies to discover supernovae, active galactic nuclei, quasars and new exiting transient events. Our research is focused on the catastrophic deaths of massive stars, which is a fundamental ingredient for understanding galaxy formation, cosmic chemical evolution, and the mechanisms which determined the efficiency of the conversion of gas into stars in galaxies at various epochs. The large field of view of 2.6m VLT survey telescope (VST) provides us the unique opportunity to obtain, at the same time, unprecedented Supernova statistics and unbiased nature of the host galaxies surveyed.
We expect to detect on average a dozen Supernova candidates on each VST image and, at the end of the survey, to collect light curves and colors for about 500 Supernovae.

In the first run of SUDARE we found 11 transient events which light curves are compatible with Supernova events and several transient events of other types. We expect to collect about 100 Supernova candidates at the end of the year. This thesis project is focused on the detection and classification of transient events in the first year of SUDARE survey.
The role of the student will be to test and validate the new codes, to maintain the transient archive and to help in the classification and analysis of all kinds of transient events. This will involve planning VLT and NTT spectroscopic observations. S/he will also analyse the detection efficiency of the Supernova search by performing simulations on the images with both faked Supernovae and AGNs.