

Short CV of Giuseppe Di Stefano

Di Stefano Giuseppe was born in Catania on 13 November 1967

Education:

- PhD at the University of Perugia (Italy), in Earth Sciences and Geo-technology, discussing the work on the "Development of a machine prototype for the study of rock mechanics and characterization of the physical properties of experimental faults using ultrasonic waves".
- Degree in Electronic Engineering from the University of Catania (Italy), with specialization in system control.
- High school diploma at the Industrial Technical Institute "Archimede" of Catania, (Italy)

Professional positions:

- Since 1994 I work at ING (then INGV), first as Technical Collaborator of Research Institute (CTER), then technologist (1998) and first technologist (since 2008).
- Since 2016, I am professor of "General Electronics" at the Physics Department of the "La Sapienza" University of Rome.

Main experience:

During my activities, I have gained experience in the geo-technology field:

- Development of mechanical and electronic technologies for the development of apparatus and tools for geophysical observation. Design of embedded control and acquisition system (software and hardware), instruments for continuous data acquisition, monitoring and environmental remote sensing.
- Development of automatic payloads, used on board drones for measurements of geochemical parameters and sampling on volcanoes and trim systems installed on board gondolas for stratospheric experiments with balloon flight.
- Development of piezo transducers used to send and detect pressure waves to study the propagation of mechanical waves in rock samples under stress, during a stick and slip process.

Main project and collaborations:

- LDB (Long Duration Balloon) program. I have collaborated at the projects BOOMERANG, OLIMPO and PEGASO, funded by PNRA and ASI, developing measurement instruments, sensors and control devices for scientific payloads used to perform experiments on board stratospheric balloons. During these project I have also followed integration phase of the experimental instruments on the gondola and its flight chain; I collaborated during the launch phase of the experiment at the launch bases at McMurdo (Antartica) and Longyearbyen (Svalbard).
- USEMS ERC project: Electronic design and engineering of a pneumatic loading control system and a multi channels data acquisition unit installed on new SHIVA (Slow to High Velocity Apparatus) apparatus used to simulate the mechanical processes during a seismic cycle on rock samples under conditions of highly intense and fast variable loads and velocity.
- GLASS ERC project: Electronic design and development of a multi-process control software, based on real time platform, for hydraulic system used to implement a new tri-axial press called BRAVA (Brittle Rock Investigations Versatile Apparatus). The apparatus is able to simulate the slow mechanical rock deformation on samples under different loads conditions for studying the behaviour and physical property of fault rock during the aseismic to seismic cycles.
- LUSI ERC project: Development and realization of automated small scientific payloads to install on board of big drone (S800 of the DJI) for conducting automatic gas and mud sampling and remote measurements of geochemical parameters over dangerous and hostile environments.

Also in the framework of the project, he also participated in four measurement and sampling fly campaigns (with drone) on the LUSI crater (in Sidoarjo in Indonesia) in December 2013 and in the years 2014, 2015 and 2017.

- NOFEAR ERC project. Collaboration for two activities: 1) Feasibility study for the development of a furnace to be included in the SHIVA apparatus, for raising the temperature of experimental rock samples subjected to stress. 2) Development of an additional piezo-electro-mechanical module inserted in the SHIVA apparatus to conduct frequency response measurements and seismic attenuation.

Institutional activities:

- He has carried out assignments to review technical articles published in the "Technical Reports" of the INGV.
- He has been and is the technical manager for the maintenance and updating of the electronic control parts of three hydraulic-mechanical devices at the HP-HT laboratory.
- He was a selection committee member for a research grant.
- Seismic surveillance activity for the technical control of the national seismic network system