NEO-SURFACE: Near-Earth Objects — SURvey oF Asteroids Close to the Earth

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Near-Earth Objects (NEOs) form a continuously replenished population of asteroids and dead comets that cross the Earth's orbit while orbiting the Sun. Our present knowledge of their physical properties is rather limited, especially for what concerns faint and newly-discovered objects, of which we have physical information for less than 10 % of the population. The most frequent technique to obtain physical characterizations of NEOs is the optical/NIR spectroscopy: by analyzing the object's spectral features, it is possible to detect minerals and compounds (e.g., silicates, organics, and products of aqueous-alteration processes) present on its surface, to put constraints on the thermal evolution (maximum temperature reached, aqueous alteration vs. thermal metamorphism), as well as to establish possible links with objects belonging to other populations of small bodies (e.g., main-belt asteroids, and comets) and with meteorites. In order to increase the present knowledge of the physical properties of NEOs, we are carrying out a survey called NEO-SURFACE: Near Earth Objects — SURvey oF Asteroids Close to the Earth (http://www.oa-roma.inaf.it/planet/NEOSurface.html). We perform V+NIR spectroscopy and photometry focusing our effort, first, on NEOs with possible close approaches with the Earth (PHAs, the Potentially Hazardous Asteroids), and, second, on NEOs easily accessible for future rendezvous space missions. In cases of NEOs causing an impact hazard, physical parameters are fundamental in order to estimate their response to non-gravitational forces (mainly to the Yarkovsky effect) and therefore model their future dynamical evolution. For suitable targets for space missions, the physical characterization is needed to guarantee both the technical feasibility and the high scientific return of the mission. The results collected until now will be presented and discussed.