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**NEOROCKS: INVESTIGATING THE PHYSICAL NATURE OF THE SMALL
ASTEROID POPULATION**

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ABSTRACT

In the framework of the H2020 NEOROCKS (“NEO Rapid Observation, Characterization and Key Simulations”) project, we executed early-response (within a month of discovery) spectroscopic observations of newly-discovered small NEOs in order to investigate the physical nature of this population. Besides allowing to open new frontiers in asteroid science (including topics like the delivery of water and organics to the early Earth), studying the nature of such bodies is fundamental for planetary defense purposes. The discovery rate of these small-sized asteroids – metres to hectometres – is exponentially increasing; however, they usually become bright enough for physical characterization only for a few weeks, after which they could be unobservable for years or even decades. We acquired TNG-3.5m/DOLORES low-resolution visible spectra of “high-priority” targets (that would otherwise be lost) during three observing semesters, from spring 2021 to fall 2022 and our programme is currently ongoing at NOT-2.56m with ALFOSC and NOTCam programmed observations. Our aim is to derive taxonomic classification and matching with meteorites laboratory spectra, in order to shed light on the poorly known physical properties of such small-sized asteroids, and constitutes a fundamental input for an accurate planning of eventual impact risk mitigation measures.

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Comments:

Oral presentation preferred.

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