

# Mineralogical and morphological characterization and optimization of extractive techniques applied to minor bodies of the Solar System.

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## Abstract

In this work we review what are the demands related to critical elements in technological areas in the near future, being its extraction from asteroids the main target. We study how frequently those critical elements appear in different asteroid taxonomies by comparing the asteroid taxonomies with meteor remains on Earth, concluding that the best candidates to be mined in a future mission would be M/X type asteroids. We have selected several NEA's and asteroids from the Main Belt belonging to this taxonomy as optimal candidates to be mined, studying their composition by spectroscopy. We also analyse their available dense and sparse photometry in databases in order to obtain their physical parameters (pole orientation, rotation period, size) and also apply the light curve inversion method, complemented with radar images, if available, to estimate their shape, which is fundamental to determine which mining method is the optimal in each particular asteroid. In this work we have focused on (4660) Nereus.