

## Lutetia global shape and topography reconstructed with photoclinometry by deformation

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### Abstract

3D reconstruction of asteroids and cometary nuclei allows us to model their physical, geomorphological and geological properties. We applied a new reconstruction method by photoclinometry based on the minimization of the chi-square difference between observed and synthetic images by deformation of a 3D triangular mesh to a set of images of asteroid (21) Lutetia acquired by the OSIRIS cameras aboard ESA's ROSETTA spacecraft in July 2010. This allowed us to retrieve an improved global shape of the asteroid as well as the local topography of its main features: the large Massalia crater, the North pole crater complex and several other topographic features of interest. A comparison of this model with those obtained with other techniques will be presented.

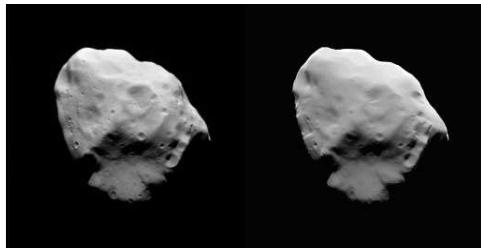


Figure 1: Illustration of the method used to reconstruct the global shape of the asteroid (21) Lutetia. A sample observed image (left) is compared to the same image generated from the shape model (right).