The surface Topography of asteroid (21) Lutetia

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We analyzed images of the asteroid Lutetia that were obtained by the European Space Agency's Rosetta mission during the flyby in July 2010, with two-dimensional photoclinometry and compared the results with topography derived from photogrammetry . We selected images that contain strong shading from topographic slopes but little or no variation in albedo. This strong shading is generated by relatively large incidence angles (greater than 30 degrees). In order to obtain a topography, it is necessary to have an accurate photometric model for the surface. For modeling the photometry of asteroid Lutetia, we start with the Hapke model fits to C-type asteroid and employ the empirical function of Lunar-Lambert. Moreover, we try to reconstruct the surface with other different photometric functions and compare with each others as well as the result from photogrammetric analysis.