THE THERMAL INERTIA OF LUTETIA AS DERIVED FROM VIRTIS/ROSETTA. M.T. Capria[1], F. Tosi[1], F. Capaccioni[1], M.C. De Sanctis[1], G. Filacchione[1], S. Erard[2], C. Leyrat[2], E. Kuehrt[3], and the VIRTIS team. , [1]INAF-IAPS, Via del Fosso del Cavaliere 100, I-00133 Rome, Italy, mariateresa.capria@iasf-roma.inaf.it. [2] Obs. De Paris-Meudon, France. [3] Institute of Planetary Research, German Aerospace Center, Berlin, Germany.

Introduction: In July 2010, the Rosetta probe performed a fly-by of the asteroid Lutetia. Temperature information has been obtained from the spectra acquired by VIRTIS, the visible and near-infrared imaging spectrometer [1]. When combined with a thermophysical model, these temperatures can be used to derive surface thermal properties. Thermal properties are sensitive to several physical characteristics of the surface that are not all spatially resolved. Thus, the derivation of surface temperatures and thermal inertia can help to characterize surface and sub-surface properties of Lutetia and constrain regolith properties.

Method and results: The model we are using solves the heat conduction equation and provides the temperature as a function of thermal conductivity, albedo, emissivity, density and specific heat. The model is applied to the actual shape of Lutetia. Given a location, the thermophysical code is applied until the obtained tem-peratures are matching (best-fit techniques are used) the temperatures derived from the VIR spectra. The thermal inertia, thermal conductivity, albedo and roughness values are then assumed to be characterizing the location under analysis. The results of the model are then checked and interpreted by taking into account the context (from high-resolution images acquired by the framing cameras) and in general all the available information.

References: [1] A. Coradini et al. (2011) *Science, 334*, 492-494.