# Thermal Inertia and Surface Roughness of Comet 9P/Tempel 1

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Near-infrared (NIR) thermal emission spectra of the resolved nucleus of Comet 9P/Tempel 1 was obtained by the NASA spacecraft *Deep Impact.* Substantial efforts has been made [1,2] to retrieve information regarding the surface properties of the comet, e.g., its thermal inertia, by attempting to reproduce the observed surface temperatures through thermophysical modeling. Consensus has so far not been reached regarding the physical properties of the nucleus, although there is agreement that the presence of surface roughness is making the analysis difficult. We report on results from new modeling which explicitly considers surface roughness (including associated phenomena such as shadowing and self heating), and 1D as well as 3D heat conduction. This modeling indicates that lateral heat conduction (which often is ignored in the analysis of thermal emission from atmosphereless Solar System bodies) indeed is important for Comet 9P/Tempel 1.

## References

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