Dear Editor of *Computational Geosciences,*

We are pleased to submit our manuscript entitled "MultIHeaTS: an Open Source Implicit Thermal Solver for 1D Multilayered Surfaces" for consideration in your esteemed journal. Our article proposes a novel approach to solve the heat diffusion problem for heterogeneous media, with a specific focus on planetary surface conditions. However, the tool we present is versatile and can be easily adapted for use in various applications.

We have validated our tool using an analytical solution for a homogeneous case and a reference explicit scheme for a heterogeneous case. Additionally, we demonstrate the capabilities of our tool by analyzing the error as a function of the Fourier stability number and comparing it to the well-established Crank-Nicolson scheme. Our results indicate that our scheme is more accurate than the Crank-Nicolson scheme for heterogeneous surfaces, particularly at high Fourier stability numbers.

Given the nature of our research, we believe that your journal would be an ideal venue to showcase our findings. Please note that this manuscript has not been published elsewhere and has not been submitted simultaneously for publication elsewhere.

We would like to suggest the following four international experts as potential reviewers for our article:

1) John Spencer spencer@boulder.swri.edu
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Expert in heat transfer in planetary bodies

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Research Scientist at JPL/Caltech. Pasadena, CA, USA
Expert of thermophysical properties of planetary surfaces

Thank you for considering our manuscript for publication. We look forward to your response.

Sincerely,

Cyril Mergny on behalf of the co-author.