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## **Table of Personnel and Work Effort**

This work will be primarily a collaboration between the PI and the co-I Dr. Phil Marshall, who is currently a Staff Scientist at SLAC and one of the LSST Dark Energy Science analysis working group conveners. It is proposed to support a postdoctoral fellow, Laurence Perreault Levasseur to work on this project half time for two years. As we are conducting this research in open view, we expect to attract additional collaborators and several local colleagues have already expressed interest in it. We are considering recruiting a graduate student in the fall to join us on this project. Already an excellent junior undergraduate has expressed interest in joining immediately. Both would be supported by Stanford/KIPAC funds.

Blandford will test the modeling pipeline with mocks and quantify the goodness of the 3D recovery, investigate the effects of considering different cosmological models, box parameters, etc. and optimize the reconstruction with simulations of potential maps, mock CMB temperature and polarization maps, and finally using the publicly released Planck temperature and polarization data. He will also lead the non-parametric investigation of non-Gaussianities and its tree representation. Meanwhile, Marshall will work on addressing the underlying Bayesian inference problems posed by combining local surveys with CMB data. He will also lead the self-consistency tests of Gaussian assumption and the development of non-Gaussian extensions in the modeling. Perreault Levasseur has begun preliminary work on the connection to inflation, through the investigation of the mode phases and the inflationary potential reconstruction, and intends to participate fully in developing the new statistical approaches.

## Statements of Commitment and Letters of Support

I, Phil Marshall, acknowledge that I am identified by name as Co-Investigator to the investigation, entitled Music of the Sphere, that is submitted by Roger D. Blandford to the NASA funding announcement NNH16ZDA001N-ADAP, and that I intend to carry out all responsibilities identified for me in this proposal. I understand that the extent and justification of my participation as stated in this proposal will be considered during peer review in determining in part the merits of this proposal. I have read the entire proposal, including the management plan and budget, and I agree that the proposal correctly describes my commitment to the proposed investigation. For the purposes of conducting work for this investigation, my participating organization is SLAC.



Phil Marshall

I, Laurence Perreault Levasseur, acknowledge that I am identified by name as Postdoctoral Associate to the investigation, entitled Music of the Sphere, that is submitted by Roger D. Blandford to the NASA funding announcement NNH16ZDA001N-ADAP, and that I intend to carry out all responsibilities identified for me in this proposal. I understand that the extent and justification of my participation as stated in this proposal will be considered during peer review in determining in part the merits of this proposal. I have read the entire proposal, including the management plan and budget, and I agree that the proposal correctly describes my commitment to the proposed investigation. For the purposes of conducting work for this investigation, my participating organization is KIPAC, Stanford University.



Laurence Perreault Levasseur