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Waves!

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ABSTRACT

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1. INTRODUCTION

Here's what Evan needs to do:

1. Get all of the damping layer simulations run.
2. Get a really long simulation run without a damping layer.
3. Do the transfer function derivation again.
4. Make figures and write out the story!

2. GRAIVITY WAVES IN THE TERMINOLOGY OF SOUND WAVES

3. SIMULATION DETAILS

4. RESULTS OF SIMULATIONS WITH DAMPING LAYERS

This is the "recording studio" section – it's useful to report the amplitude here because the theory doesn't give that.

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We should run simulations as turbulent as possible here. Hopefully more turbulnce doesn't change the result. We will ignore the low-resolution laminar runs.

We report that we see powerlaw wave fluxes at all turbulence values, and no scaling with turbulence (hopefully).

5. SURFACE MANIFESTATION OF GRAVITY WAVES

This is the "Band plays in the bar" section – we can measure sound waves and resonances here.

We should run simulations for a long time here, at a resolution like 256^3.

6. TRANSFER FUNCTION: LINEAR THEORY DESCRIBES SURFACE MANIFESTATION

This is the section where we open Garage Band and put our bar filter on the recordings we took earlier. We see if the filter actually reproduces the resonances of the bar, etc.

Need to check through the transfer function derivation and theory here carefully. It may be useful to include Kyle here?

7. TRANSFER FUNCTION EXTRAPOLATION TO REAL STARS

This is where we say, based on the last section, the bar filter does a pretty good job of turning studio into bar. So, let's now see what happens if we use a stadium filter instead of a bar filter (whole star instead of sim). We obviously can't actually simulate a whole star, but our hope is that this gives us an idea of what gravity waves would look like on stars in gyre.

8. CONCLUSIONS & DISCUSSION

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APPENDIX

REFERENCES