

SPUR 2022:
Hausdorff Dimension and Projections
Paige Dote

with Professor Guth and Shengwen Gan

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Chapter 1

Pre-Project

1.1 May 23-29

1.1.1 May 23-24

Hi Larry and Shengwen! To catch you up to speed Shengwen, last summer when I was doing research with Larry and Yuqiu, I kept a track of notes over LaTeX in order to keep communications over, and this really helped keep track of ideas and problems I was working on. You can find this set of notes [here](#) if you are interested. I figured I would start the same for the SPUR project, at least while working remotely in California!

So, last I spoke with Shengwen we discussed readings to start looking at for the project. The first recommendation is *Fourier Analysis and Hausdorff Dimension* by Mattila (2015). This is available online over SpringerLink, so I have started on the specific suggested readings (SS2.2, 2.5, and Chapter 4). My goal is to finish reading these sections by the end of tomorrow (May 25).

Below are my notes so far on these sections and questions that came up. I also read through Chapter 1 and §2.1 to understand the bigger picture of the text a bit more, as well as get used to some of the notation.