

MISSION | SPECIAL RELATIVITY

REFATH BARI

6/26/20

PLAN

A PAPER ON SPECIAL RELATIVITY OR PERHAPS MORE BROADLY, ON THE GEOMETRY OF SPACE-TIME. BELOW ARE SOME PLAUSIBLE RESEARCH QUESTIONS.

RESEARCH QUESTIONS

BELOW ARE SOME SPECIFIC, POTENTIALLY VIABLE RESEARCH QUESTIONS. THESE ARE SUBJECT TO CHANGE AS I CONTINUE TO DELVE DEEPER INTO THE SUBJECT OF RELATIVITY:

1. HOW DO THE LORENTZ TRANSFORMATIONS ACT AS A CORRECTION TO THE GALILEAN TRANSFORMATIONS?
2. WHAT IS THE EQUIVALENCE PRINCIPLE?
3. WHY IS THE FITZGERALD CONTRACTION INSUFFICIENT?
4. WHAT ROLE DID MAXWELL'S EQUATIONS PLAY IN RELATIVITY?

RESEARCH INTERESTS

THESE ARE THE TOPICS I WILL MOST LIKELY ATTEMPT TO INTEGRATE IN MY FINAL PAPER

1. EIGENVECTORS & EIGENVALUES
2. MATRIX ALGEBRA
3. MAXWELL'S EQUATIONS
4. LORENTZ TRANSFORMS

METHODOLOGY

THESE ARE THE RESOURCES I WILL USE IN MY STUDIES OF SPECIAL RELATIVITY. I OUTLINE THE MEANS BY WHICH I WILL UTILIZE THESE RESOURCES IN MY TIMELINE.

1. *THE GEOMETRY OF SPACETIME: AN INTRODUCTION TO SPECIAL AND GENERAL RELATIVITY* BY JAMES CALLAHAN
2. *A STUDENT'S GUIDE TO MAXWELL'S EQUATIONS* BY DAN FLEISCH
3. *FUNDAMENTALS OF PHYSICS II* BY RAMAMURTI SHANKAR