33-120
Science & Science Fiction

Welcome!

Today:

Continued Critique of the First Sci-Fi Movie

Inertial Reference Frames and

Non-Inertial Reference Frames

- **Today: Acceleration & Human Spaceflight**
  - **Continued critique of first sci-fi movie**
  - **Inertial/Non-inertial Reference Frames**
  - **Setup of Homework Problem 1**
- **Friday: Quiz on Chapter 1**
  - **10 multiple-choice questions; 25 points**
  - **Study Goals posted on Canvas**

Announcements for Wednesday, August 30

- Also on Friday: Begin Major Question 1
  - What is the nature of space & time?
- No class on Monday, 9/4 (Labor Day)
- Problem 1 due Friday, September 8
  - (Example calculation in class today)

Coming Attractions…

***Somnium (Dream), by* Johannes Kepler (1634)**

Reminder from last time…
When was the first Sci-Fi novel written and who was the author?

Le Voyage dans la Lune (A Trip to the Moon)

Georges Méliès (1902)

Today…
Continue Critiquing the First Sci-Fi Movie

Le Voyage dans la Lune (A Trip to the Moon)

Georges Méliès (1902)

What did you see that might be described as…

Plausible (based on good science)

Possible in principle (but beyond our technology)

Impossible (science says NO!)

Sci-Fi when the movie was made (but now real)

Continue Critiquing the First Sci-Fi Movie

Le Voyage dans la Lune (A Trip to the Moon)

Georges Méliès (1902)

Human spaceflight as shown in the movie: Would the “astronomers” survive the launch? (in-class calculation)

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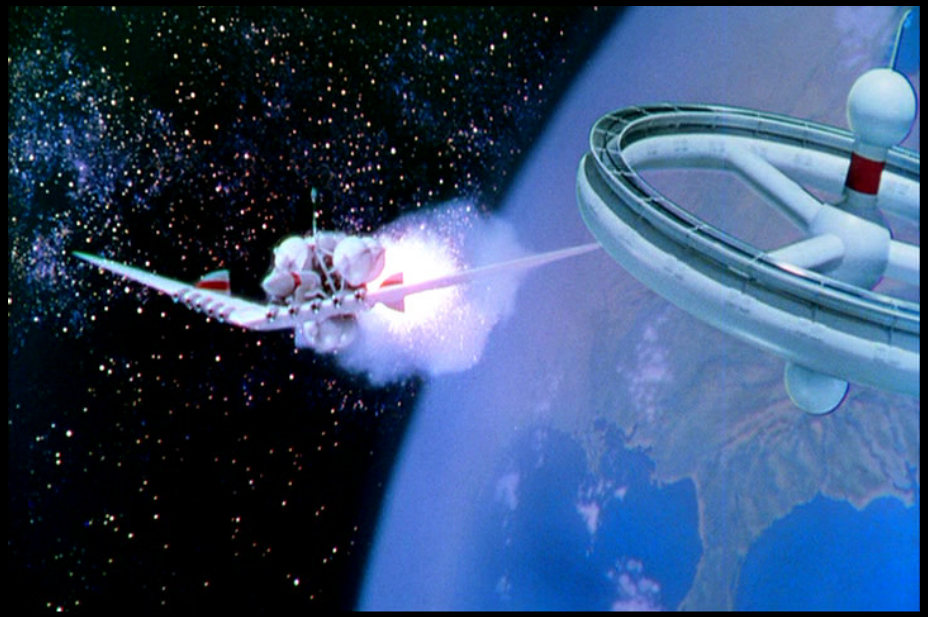
Acceleration due to Gravity: $g = 9.8\ m/s^2$

- **Everyday acceleration: a = 1xg**
- **Typical NASA space launch: a = 3xg**
- **Loss of consciousness: a = 10xg**
- **Usually lethal: a = 20xg**

Some Benchmark Accelerations



Based on a scene from a movie that is too racist, sexist and antireligious to be worthy of being named

Inspiration for Homework Problem 1 (due next Wednesday)… Imagining human spaceflight to Mars

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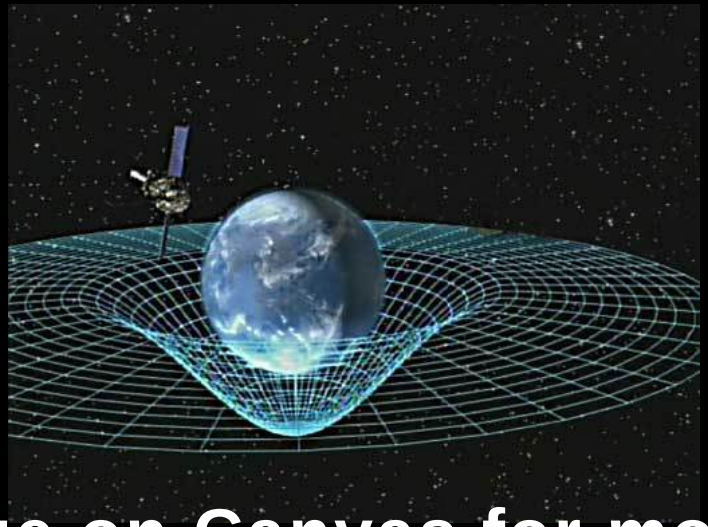
An example of a realistic Sci-Fi movie; Reference Frames

Next time…

First Major Question:

What is the nature of space and time?

(Chapter 2 in the text)



(Click the image on Canvas for more information)

Next time…