

Report on Cine Physics Event: When Physics Meets the Silver Screen

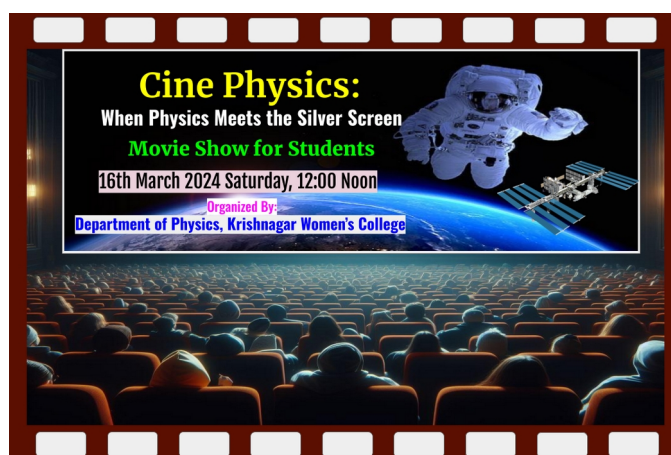
Date: 16th March 2024

Time: 12:00 Noon

Venue: Krishnagar Women's College, Department of Physics

Organized By:

Department of Physics, Krishnagar Women's College



Introduction:

The Cine Physics event, titled "When Physics Meets the Silver Screen," was organized by the Department of Physics at Krishnagar Women's College on 16th March 2024. The event aimed to bridge the gap between science education and popular culture by showcasing the film "Gravity" and conducting a detailed discussion on the various scientific concepts depicted in the movie. Approximately 20 students from science departments and 7 teaching and non-teaching staff members were present to participate in the event.

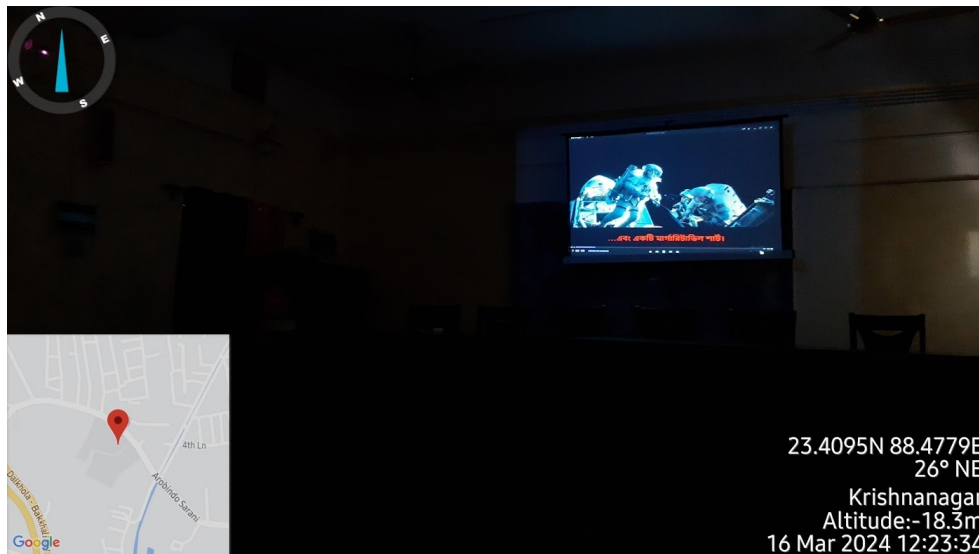
Movie Screening:

The main highlight of the event was the screening of the movie "Gravity." Directed by Alfonso Cuarón, "Gravity" is a visually stunning film that follows the harrowing journey of two astronauts stranded in space after their spacecraft is destroyed. The movie serves as an excellent platform to explore various scientific phenomena and principles related to space physics.

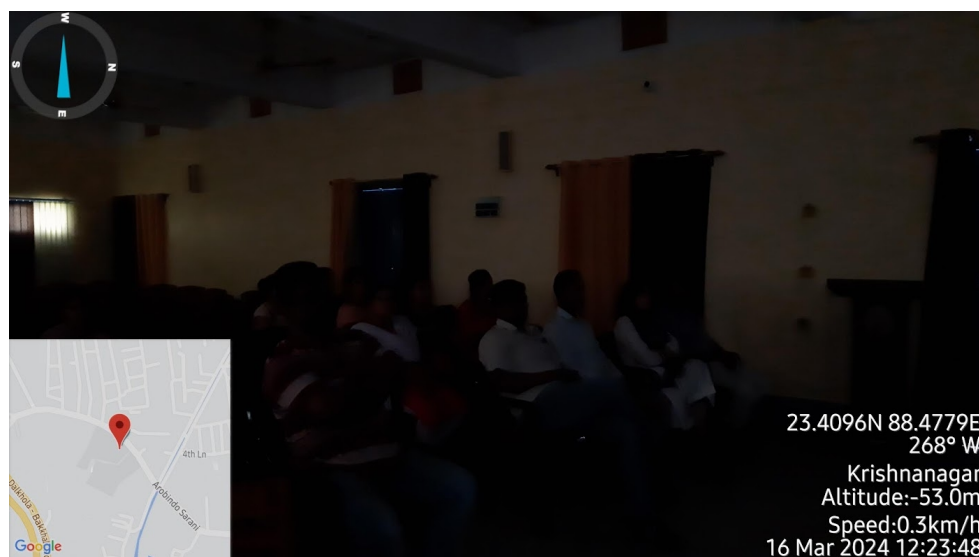


Discussion Session:

Following the screening, Sri Sajal Biswas, Assistant Professor and Head of Physics at Krishnagar Women's College, led a detailed discussion on the laws of physics and natural phenomena depicted in the film. The discussion covered a wide range of topics including:



- *Darkness of Sky in Space:* Explanation of why the sky appears dark in outer space despite the presence of countless stars.
- *Weightlessness:* Understanding the concept of weightlessness experienced by astronauts in orbit and its implications on human physiology.
- *Aurora Borealis:* Exploring the phenomenon of auroras and their occurrence near the Earth's poles due to interactions between solar wind and the planet's magnetic field.
- *Orbital Velocity:* Discussion on the speed required for an object to remain in orbit around a celestial body.
- *Kessler Syndrome:* Explanation of the theoretical scenario where the density of objects in low Earth orbit is high enough to cause collisions and generate more debris, leading to a cascade effect.
- *Fire in Space:* Understanding the behavior of fire in microgravity environments and its potential hazards.



- *Sudden Pressure Loss*: Discussion on the consequences of sudden decompression in a spacecraft and measures to mitigate risks.
- *Movement in a Spinning Tether*: Exploration of the dynamics of movement in a rotating environment such as a spinning spacecraft.
- *Spacewalks Limited Mobility*: Explanation of the challenges astronauts face during spacewalks due to limited mobility and the reliance on safety tethers.
- *Oxygen Depletion*: Understanding the importance of oxygen management in space missions and the risks associated with oxygen depletion.
- *Docking Alignment*: Discussion on the precision required for spacecraft docking maneuvers and the role of guidance systems.
- *Momentum Transfer*: Explanation of the principles of momentum transfer and its significance in space missions, especially during spacecraft rendezvous and docking procedures.



Learning Outcomes:

- *Understanding of Physics Concepts*: Participants gained a deeper understanding of fundamental physics concepts related to space exploration, including weightlessness, orbital mechanics, and the behavior of matter in microgravity environments.
- *Application of Scientific Principles*: Through the discussion of various natural phenomena depicted in the movie "Gravity," attendees learned how scientific principles are applied in real-world scenarios, particularly in the context of space missions.
- *Critical Thinking Skills*: The event encouraged participants to critically analyze the scientific accuracy of depictions in the film and to evaluate the feasibility of scenarios presented, fostering critical thinking skills and scientific skepticism.
- *Interdisciplinary Connections*: Attendees explored the interdisciplinary nature of science by examining how concepts from physics, astronomy, and engineering intersect in the field of space exploration.

- *Engagement with Popular Culture:* By integrating a popular film into the learning experience, participants were able to engage with scientific concepts in a familiar and entertaining context, making the subject matter more accessible and relatable.
- *Communication and Collaboration:* The discussion session provided opportunities for students and staff to engage in dialogue, share perspectives, and collaborate in exploring complex scientific concepts, thereby enhancing communication skills and fostering a sense of academic community.
- *Inspiration for Further Study:* Exposure to the exciting and visually captivating portrayal of space exploration in "Gravity" may have inspired participants to pursue further study or careers in STEM (Science, Technology, Engineering, and Mathematics) fields, particularly in physics, astronomy, or aerospace engineering.
- *Awareness of Space Exploration Challenges:* Participants gained insight into the challenges and risks associated with space exploration, including the hazards of microgravity environments, the complexities of spacecraft operations, and the importance of precision and safety protocols in space missions.
- *Ethical and Societal Implications:* Through discussions on topics such as oxygen depletion, sudden pressure loss, and the Kessler Syndrome, attendees were prompted to consider the ethical and societal implications of human activities in space and the need for responsible stewardship of Earth's orbital environment.
- *Motivation for Further Exploration:* The event may have sparked curiosity and enthusiasm for space exploration among participants, motivating them to further explore scientific literature, educational resources, and opportunities for hands-on experiences in the field of aerospace science and technology.

Conclusion:

The Cine Physics event proved to be an enriching experience for all participants, providing a unique opportunity to merge entertainment with scientific learning. Through the screening of "Gravity" and the subsequent discussion, attendees gained a deeper understanding of various physics concepts related to space exploration. Such initiatives play a crucial role in fostering interest and enthusiasm for science among students and educators alike.

Overall, the event was a resounding success, and the Department of Physics at Krishnagar Women's College looks forward to organizing similar events in the future to continue promoting the integration of science and popular culture.

Sajal Biswas

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