Title: General Relativity 1 - Introduction of a New Idea

Date: Aug 01, 2006 09:00 AM

URL: http://pirsa.org/08080071

Abstract: We shift our ideas from Newtonâ€™s law of gravity to a new set of equations that describe how gravity is a consequence of the curvature of spacetime.
 Learning Outcomes:
 â€¢ John Michell and his hypothetical object called a dark star.
 â€¢ How to determine the mass of a planet required for the escape velocity of an object to be the speed of light.
â€¢ Einsteinâ€™s Equivalence Principle.


Lecture 10
Black Holes


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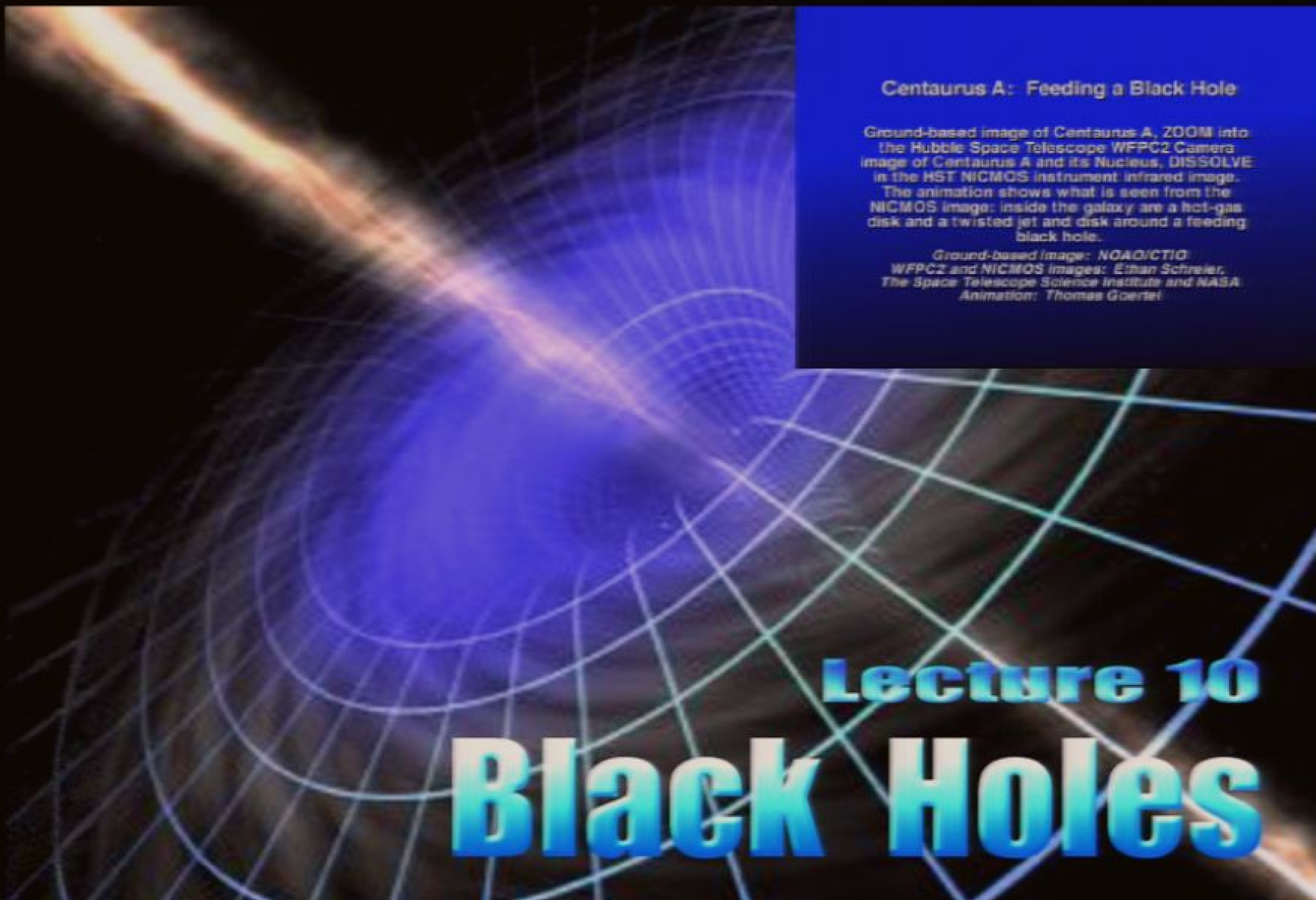
Centaurus A: Feeding a Black Hole
Ground-based image of Centaurus A, ZOOM into the Hubble Space Telescope WFPC2 Camera image of Centaurus A and its Nucleus, DISSOLVE in the HST NICMOS instrument infrared image. The animation shows what is seen from the NICMOS image: inside the galaxy are a hot-gas disk and a twisted jet and disk around a feeding black hole.
Ground-based image: NOAO/CTIO
WFPC2 and NICMOS images: Ethan Schreier, The Space Telescope Science Institute and NASA
Animation: Thomas Goertel
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Dark stars

- Rev. John Michell (1783)

  A British born "natural philosopher" dared to combine the corpuscular description of light with Newton's gravitation laws to predict what large compact stars should look like.

- He showed that a star, that has the same density of the sun, but 500 time as big, would have such a gravity, that "All light emitted from such a body would be made to return towards it". He said we wouldn't be able to see such a body, but we sure will feel it's gravitational pull.

- We could fly close to this "Dark star" and look around and describe the features of the object.

- A novelty, world lost interest when light was shown to be waves in 1803 by Thomas Young.

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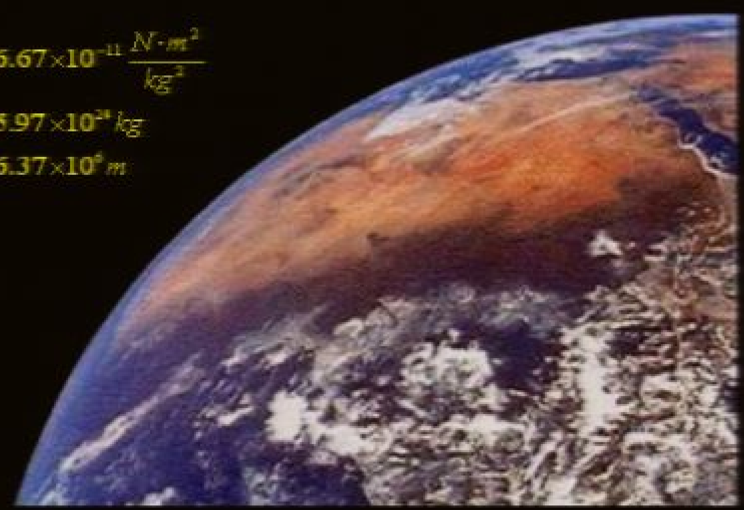

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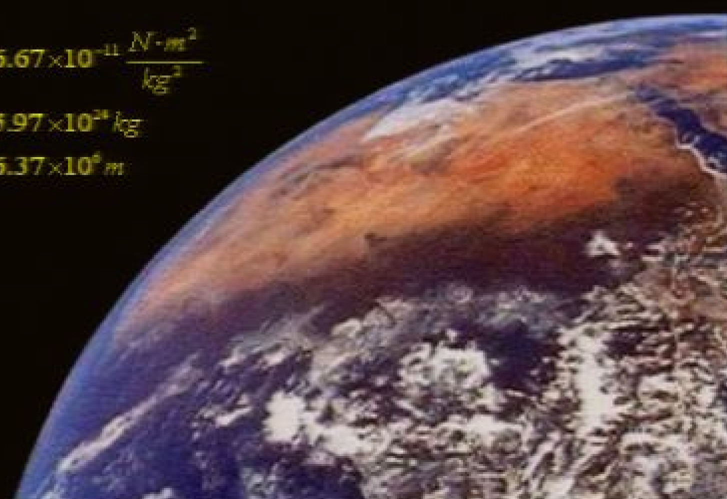

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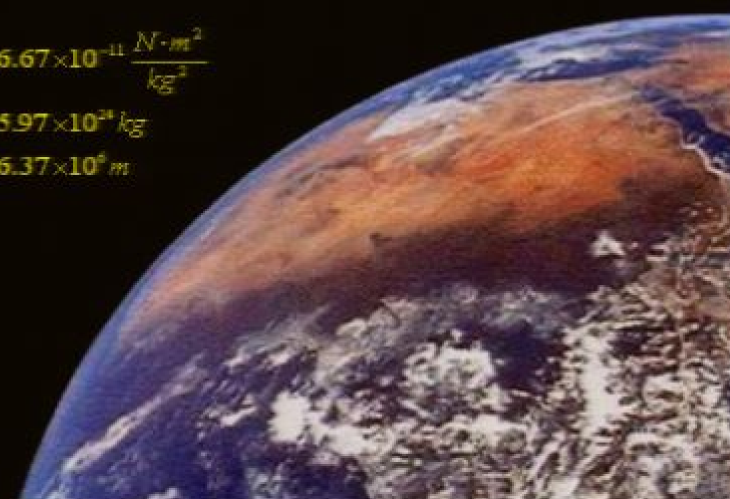

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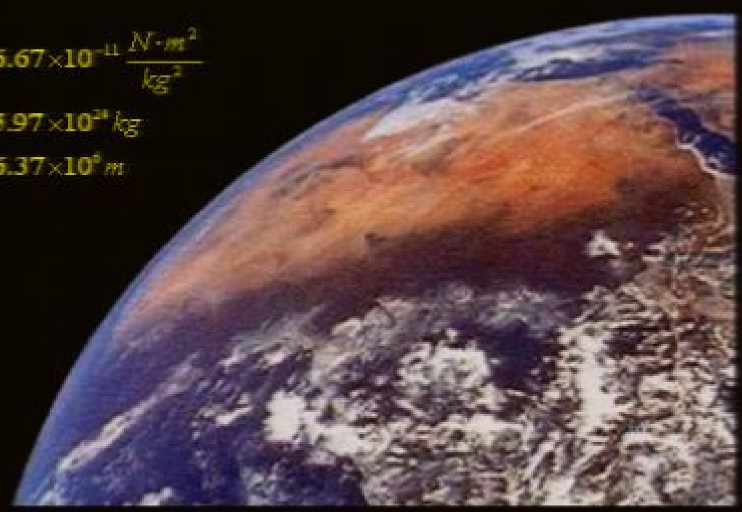

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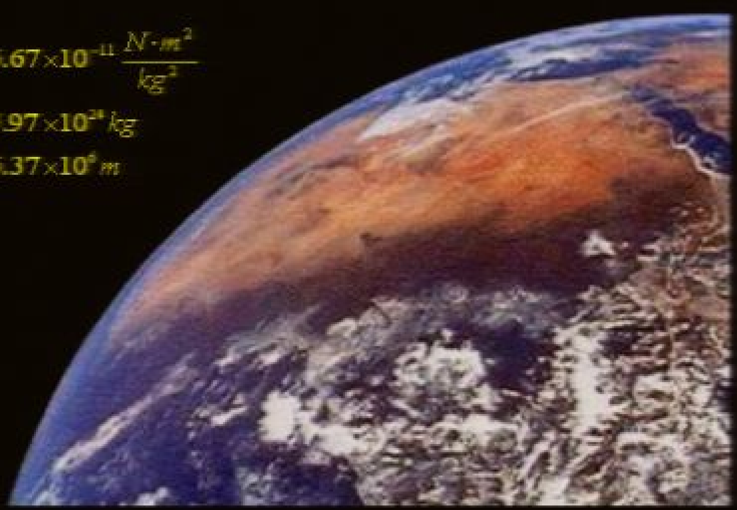

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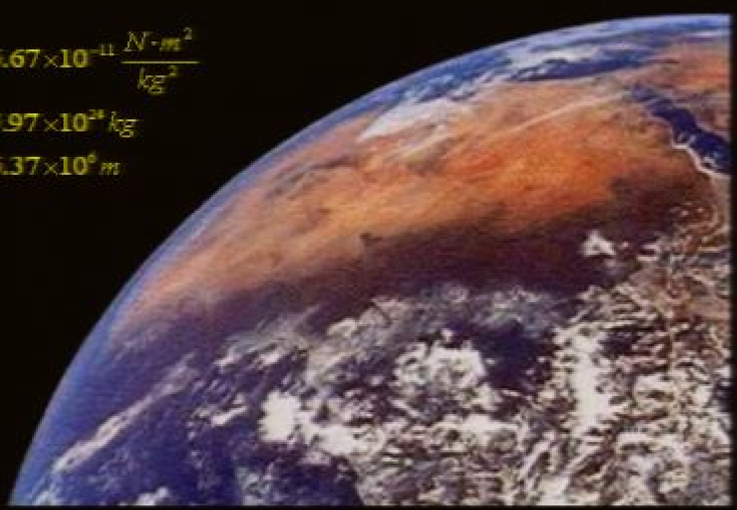

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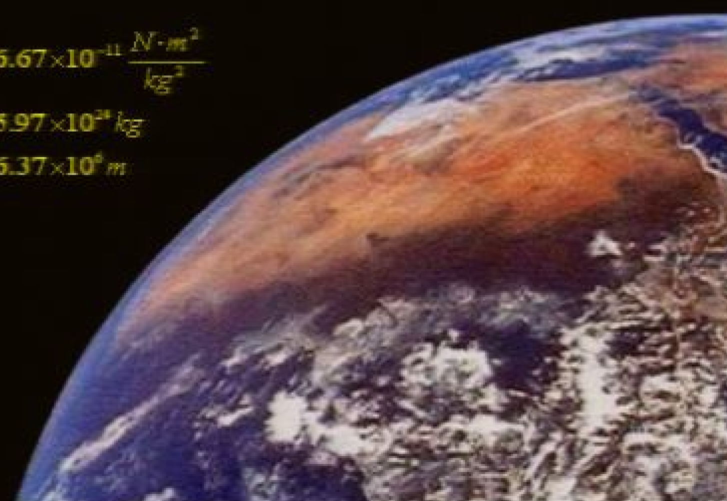

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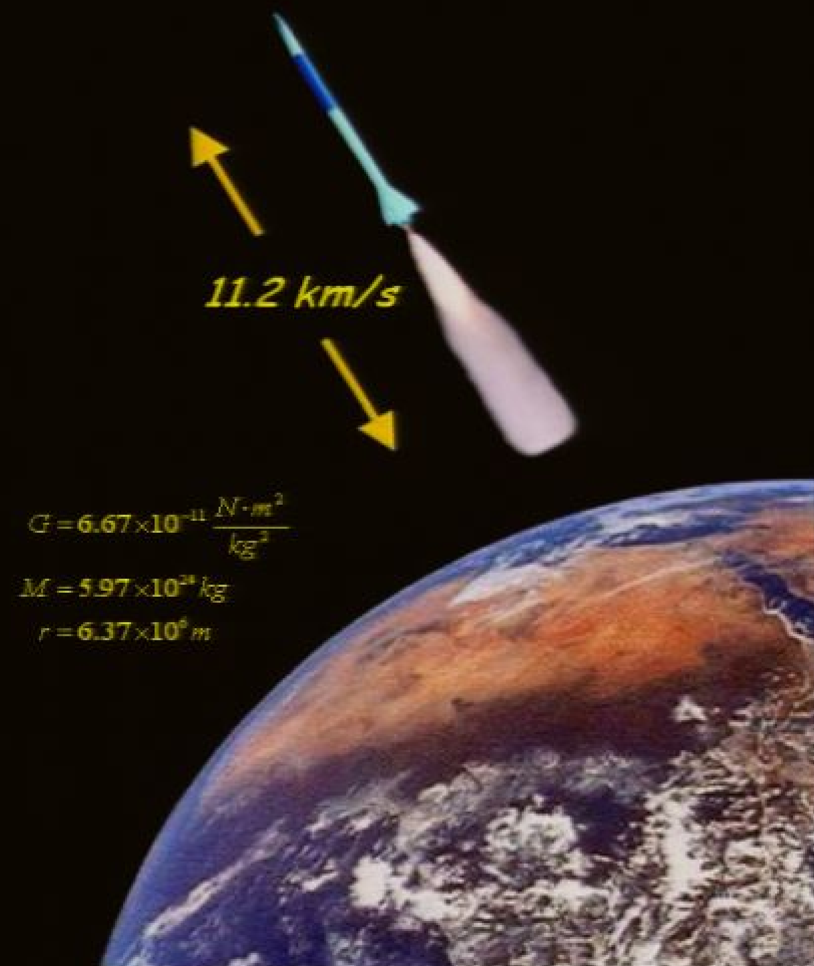

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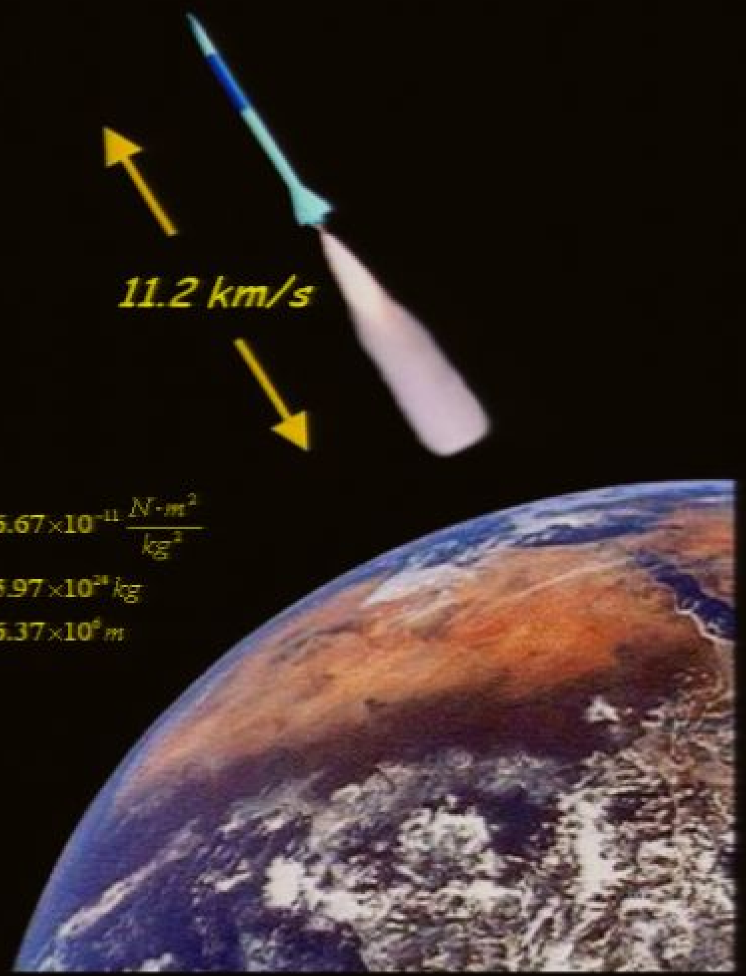

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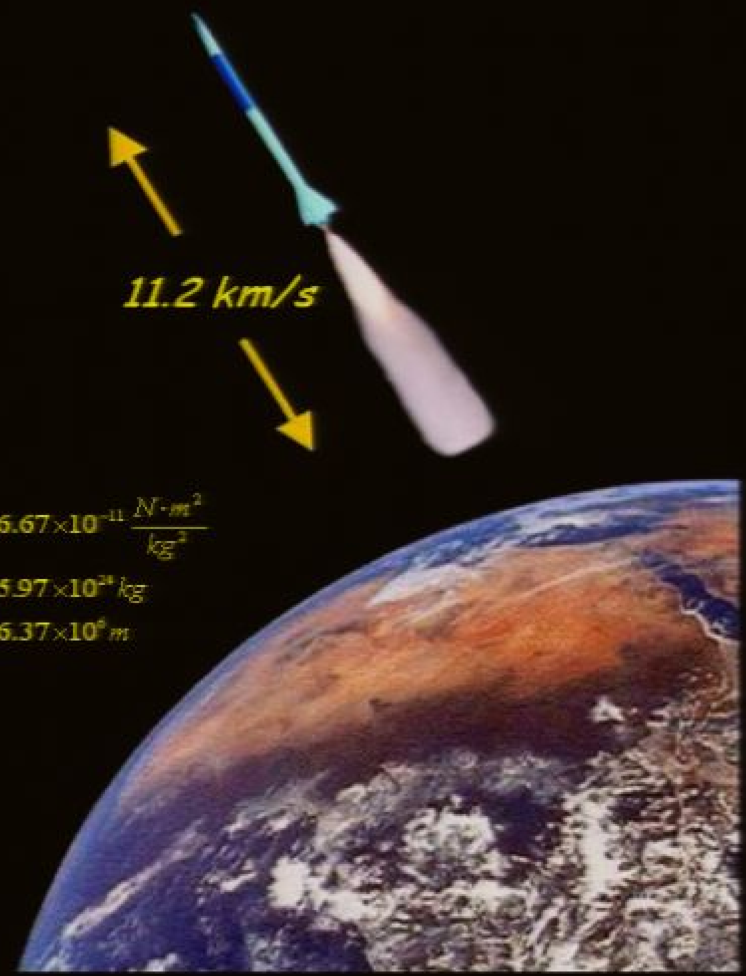

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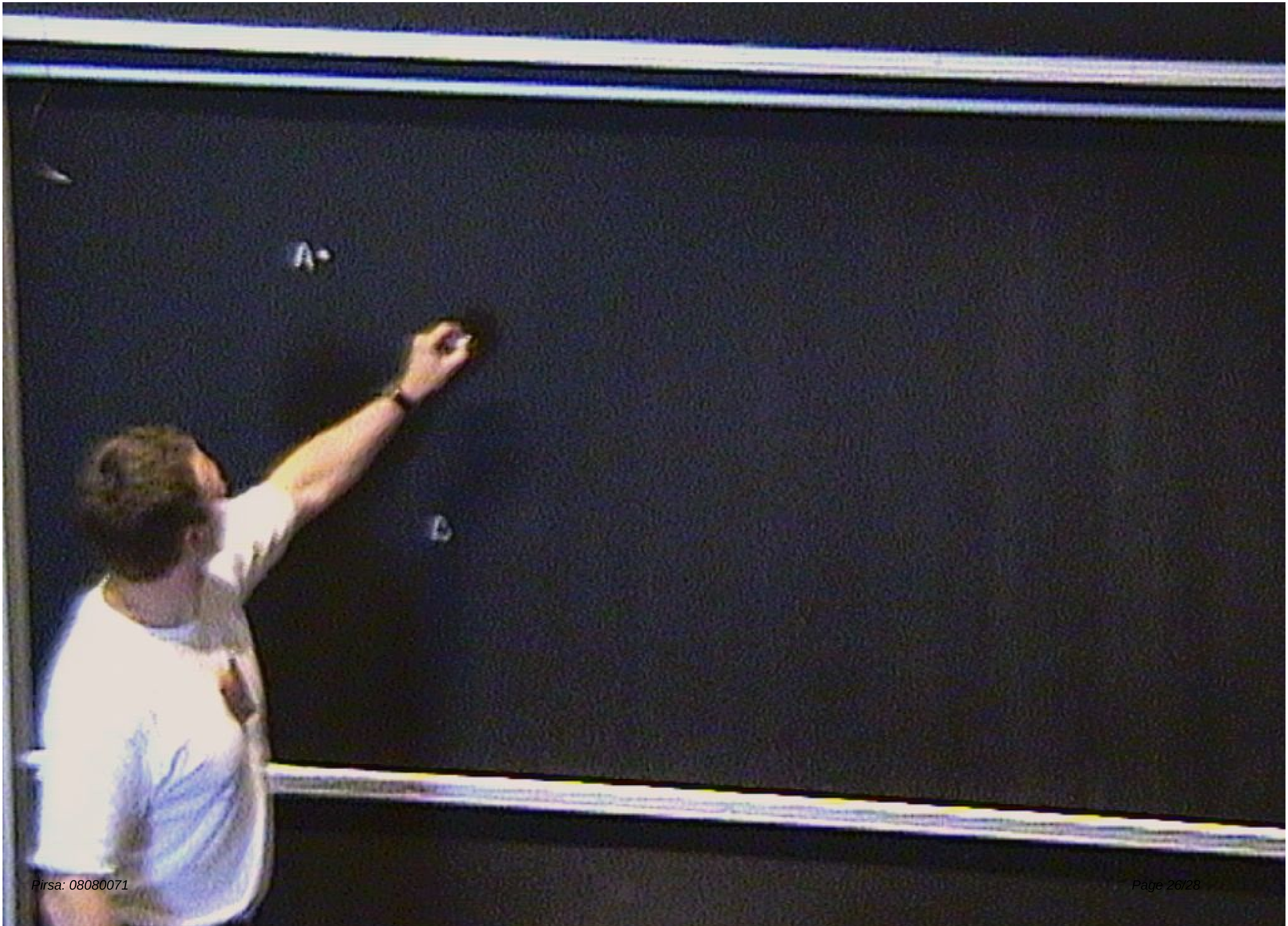
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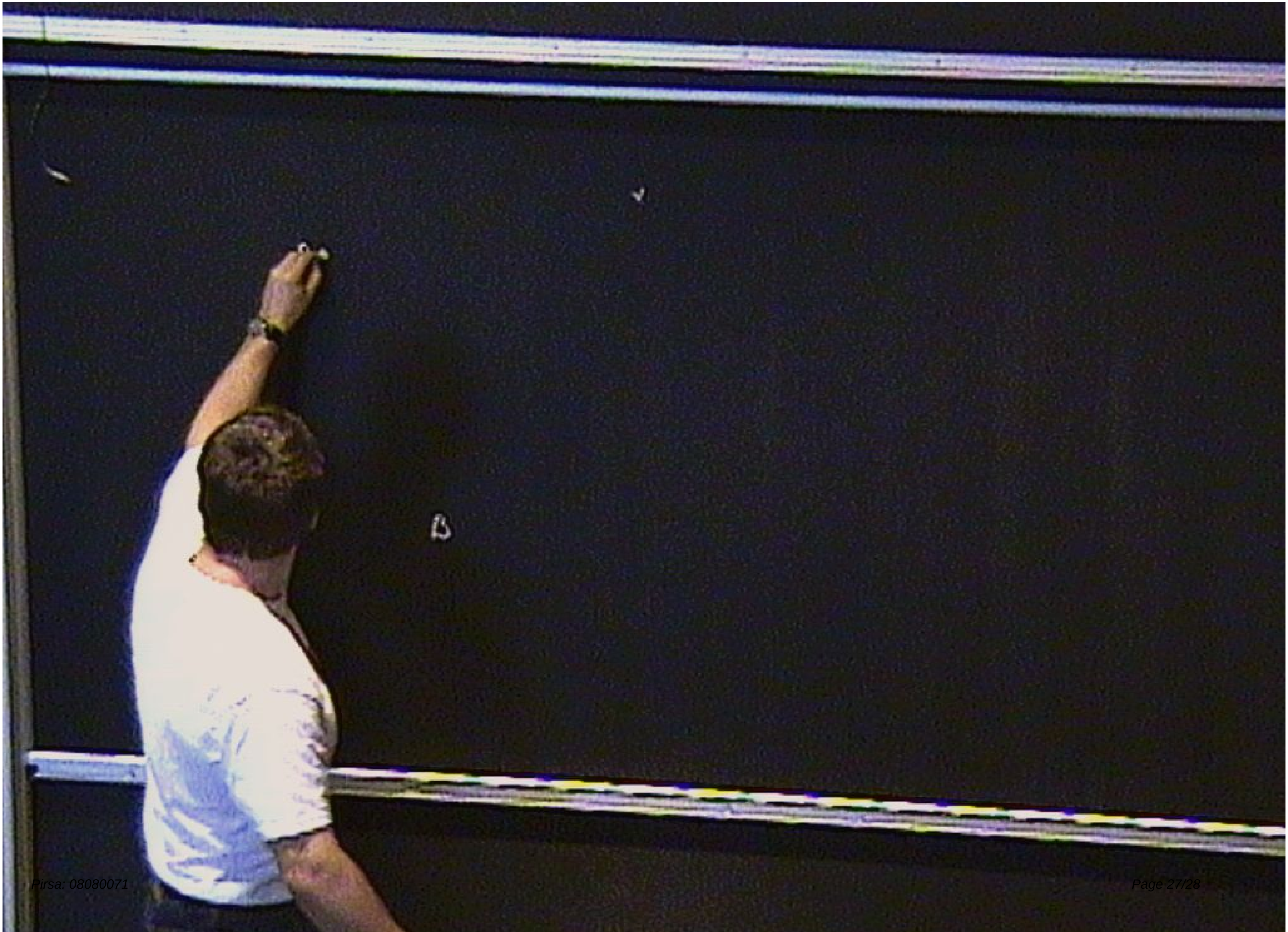

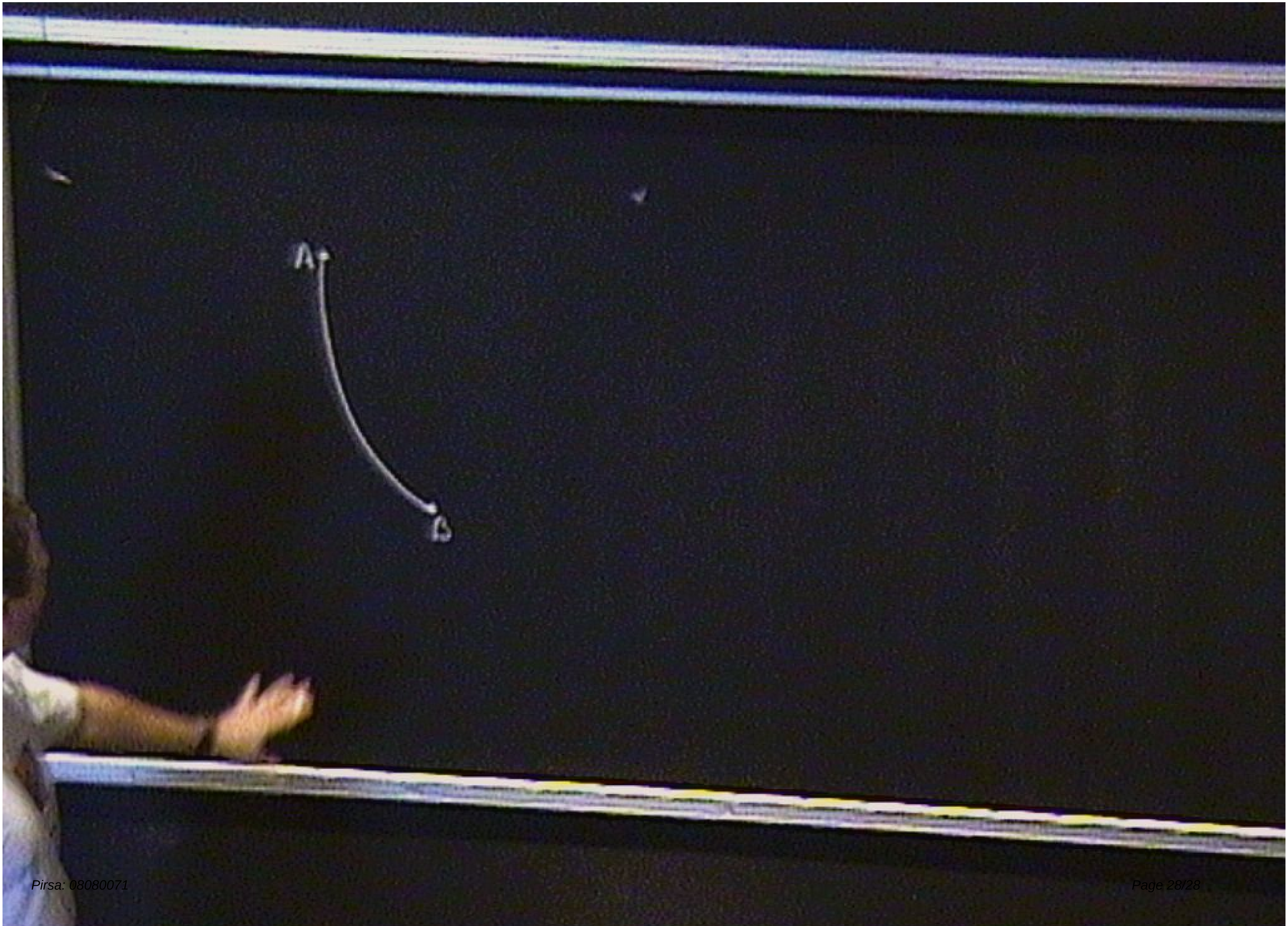
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