

# Multimedia Teaching

## Development for Physics Courses

### Project Team Members

- Prof T.K. Ng
- Prof K.Y. Wong
- Prof K.K. Fung
- Prof I. K. Sou
- Miss Lisa Chan

Presenter :

Miss L.S. Lisa Chan

Department of Physics, HKUST

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# Outline

## Part I

- Project background
- Project Characteristics
- Implementation of the animations in physics courses
- Response from students
- Animation Demonstration

## Part II (This part will not be covered today)

- Development of a web-based course

# Project Background

- Multimedia teaching is not a new element in teaching industry but is still not popular
- Many courses are still taught in a traditional way
- Students' difficulty in visualizing abstract concept in physics, animations are developed for better presenting the concept
- Encourage more faculty members to adopt multimedia teaching approach in their courses

# Project characteristics

- Hire expert in producing ~~animations~~
- Our students know exactly the difficulty they faced in learning physics
- Our own physics students get involved in a 1-credit course (Details refer to Prof Michael Wong's presentation) to create and produce the animations
- Training is provided by CELT

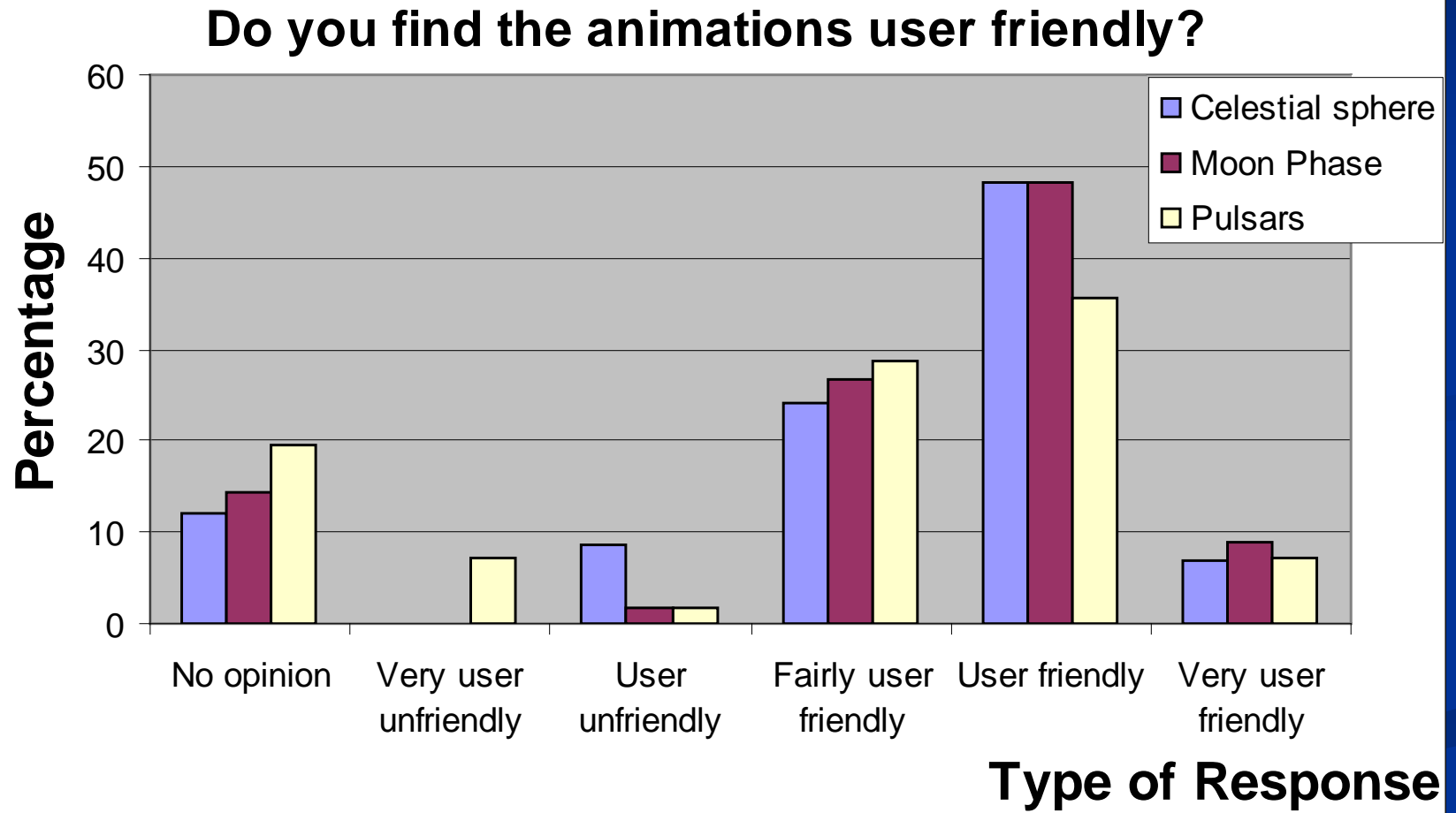
# Implementation of the animations in physics courses

- Five animations (Celestial sphere, Moon phases, Neutron star, Binary pulsars, and Relativity) were produced in year 2002-2003
- Four of them are used in PHYS002 in 2003-04 Fall and Spring semesters
- Animations are delivered as reference materials to the students

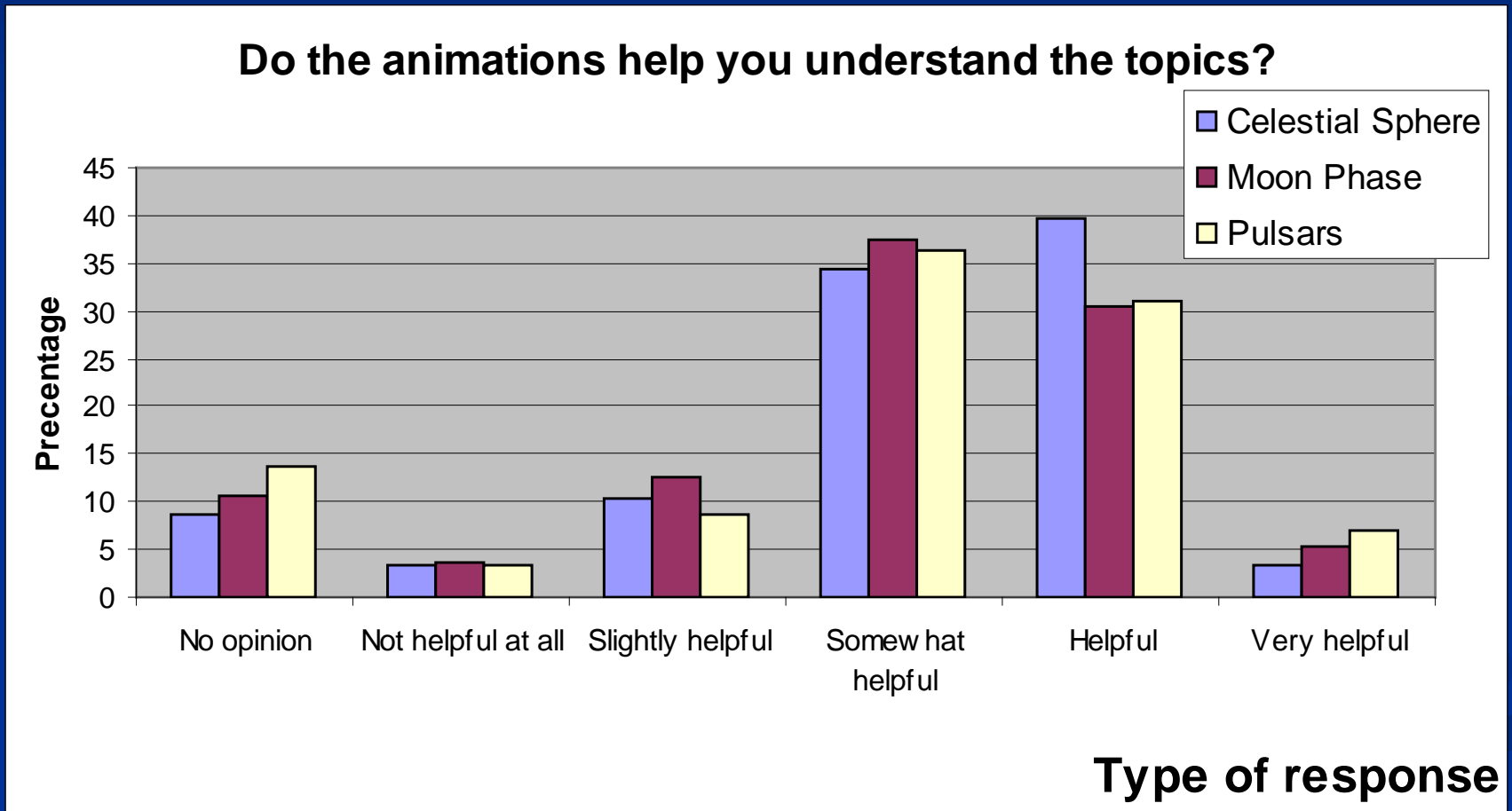
# Response from students

- A survey about the usefulness of the animations is conducted in the middle of April 2004
- Three out of four animations are evaluated
- The response rate is 30% ( 58 out of 78 respondents have watched the animations)
- The comments on the animations are generally positive

# Response from students



# Response from students





# Year 2004 students' productions

- Physics in Microwave Oven
- Binary Evolution
- Equipotential Lines

# Animations

Macromedia Flash Player 6  
File View Control Help

## Length Contraction



A diagram illustrating length contraction. A purple rocket with a yellow nose cone is moving to the right, as indicated by a yellow arrow labeled  $v$ . The rocket is positioned in a dark space filled with white stars and a few red and blue dots. In the bottom right corner of the diagram, a cartoon character with a blue suit and a red tie is looking at the rocket through a telescope.

Suppose there is a rocket whose **rest length is  $L_0$**  moving at speed  $v$  ( $\sim c$ ) relative to an observer.

Replay  

*Length Contraction Muon: Length Contraction*



Four navigation icons are located at the bottom of the slide: a blue double-headed arrow, a blue curved arrow pointing right, a green house icon with a red roof and a white chimney, and a green running figure.

# Animation's Demonstration *-Relativity-*

Produced by Chan Fan Leong  
& Yim Chi Ming

# Relativity

Macromedia Flash Player 6


File View Control Help

## *Special Relativity*

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### *Content*

- 1. Introduction*
- 2. Time Dilation and Twins Paradox*
- 3. Length Contraction*
- 4. Summary and Questions*



# Reference

- Paper Presentations in Parallel Sessions  
Session 3 - Peer Learning (3)

<http://celt.ust.hk/tlsymp04/program.html>

- Students' animation productions in 2002 - 2003

<http://www.phys.ust.hk/genphys/Flash/>

~~~THE END~~~

Thanks