

# Junior Lab Day 2

physics@mit

Today's Agenda  
8.13 Fall 2008

1. Data analysis & statistics – an introduction
2. Matlab & curve fitting
3. Selection of lab partners & experimental lines
4. Experimental Methods
  - Scopes & pulse generator
  - Photomultipliers & multi-channel analyzers

# Data Analysis & Statistics

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A Quick Introduction for 8.13

Fall 2008

1. Basic Definitions
2. Probability Distributions
3. Error Propagation
4. Fitting and  $\chi^2$  goodness-of-fit

# Data Analysis & Statistics

Goal:

Translate measured data into one or more physical variables of interest

Obtain

- Best estimate for physical variable
- Estimate for precision and accuracy of measurement (systematic and statistical uncertainty)