

UM-SJTU JOINT INSTITUTE  
PHYSICS LABORATORY  
DATA SHEET (EXERCISE 3)

Name: 曹致远

Student ID: 518370910076  
518370910030

Name: 姜航

Student ID: 518370910191

Group: 14

Date: 2019/07/26

**NOTICE.** Please remember to show the data sheet to your instructor before leaving the laboratory. The data sheet will not be accepted if the data are recorded with a pencil or modified with a correction fluid/tape. If a mistake is made in recording a datum item, cancel the wrong value by drawing a fine line through it, record the correct value legibly, and ask your instructor to confirm the correction. Please remember to take a record of the precision of the instruments used. You are required to hand in the original data with your lab report, so please keep the data sheet properly.

spring 1 $[cm] \pm 0.01 [cm]$		spring 2 $[cm] \pm 0.01 [cm]$		series $[cm] \pm 0.01 [cm]$	
$L_0$	6.03	$L_0$	5.69	$L_0$	9.84
$L_1$	8.08	$L_1$	7.55	$L_1$	13.58
$L_2$	10.09	$L_2$	9.45	$L_2$	17.58
$L_3$	12.30	$L_3$	11.37	$L_3$	21.54
$L_4$	14.50	$L_4$	13.25	$L_4$	25.65
$L_5$	16.69	$L_5$	15.18	$L_5$	29.66
$L_6$	18.83	$L_6$	17.10	$L_6$	33.81

Table 1. Spring constant measurement data.

Instructor's signature: Martin.

ten periods [ms] $\pm 0.000$ [s]					
horizontal		incline 1		incline 2	
$m_1$	12648.1	$m_1$	12597.3	$m_1$	12616.0
$m_2$	12763.6	$m_2$	12765.7	$m_2$	12772.5
$m_3$	12920.3	$m_3$	12933.0	$m_3$	12911.2
$m_4$	13061.7	$m_4$	13069.9	$m_4$	13086.1
$m_5$	13207.7	$m_5$	13225.8	$m_5$	13248.1
$m_6$	13353.4	$m_6$	13380.7	$m_6$	13387.5

Table 2. Measurement data for the  $T$  vs.  $M$  relation.

$A$ [cm] $\pm 0.1$ [cm]	ten periods [ms] $\pm 0.000$ [s]
1 5.0	13378.8
2 10.0	13380.0
3 15.0	13388.4
4 20.0	13393.0
5 25.0	13392.9
6 30.0	13394.0

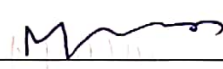
Table 3. Data for the  $T$  vs.  $A$  relation.

$A$ [cm] $\pm 0.1$ [cm]	$\Delta t$ [ms] $\pm 0.0000$ [s]
1 5.0	42.44
2 10.0	21.54
3 15.0	14.11
4 20.0	10.58
5 25.0	8.48
6 30.0	7.07

$x_{in}$ [mm] $\pm 0.02$ [mm]	$x_{out}$ [mm] $\pm 0.02$ [mm]
4.50	15.42
4.50	15.42
4.50	15.42

Table 4. Data for the  $v_{max}^2$  vs.  $A^2$  relation.

Instructor's signature: 

$m$ [g] $\pm$ 0.01 [g]	
1	4.70
2	9.41
3	14.17
4	19.01
5	23.81
6	28.61

Table 5. Weight measurement data.

object with I-shape $m_{\text{obj}}$ [g] $\pm$ 0.01 [g]	
177.22	
object with U-shape $m_{\text{obj}}$ [g] $\pm$ 0.01 [g]	
185.37	
mass of springs 1 & 2 $m_{\text{spr1\&2}}$ [g] $\pm$ 0.01 [g]	
21.32	
equivalent mass $M_0 = m_{\text{obj}} + \frac{1}{3}m_{\text{spr1\&2}}$ [g]	
I-shape	184.33
U-shape	192.48

Table 6. Mass measurement data.

Instructor's signature: 