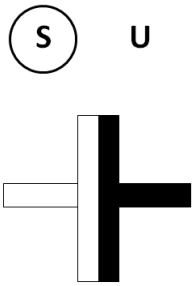
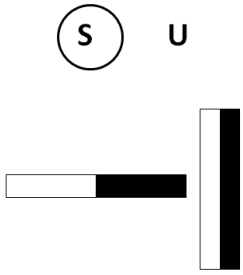
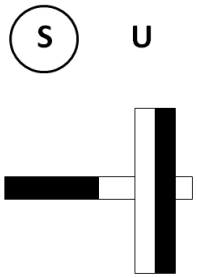
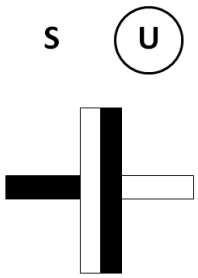
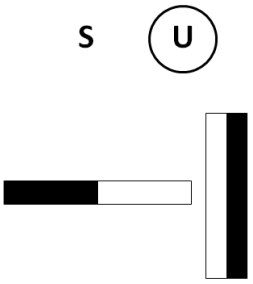
Solution - Exp. Problem 2

Task 1		Points
		0.25
		0.45
		0.45
		0.45



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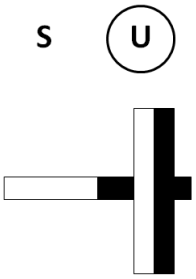


0.45

Task 2 Points

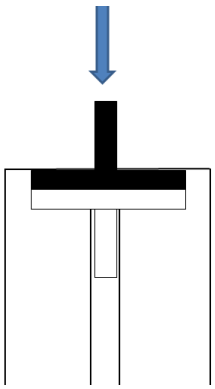
Symmetries that should be utilized in the measurements:

$F_{\uparrow\downarrow}(z) = -F_{\uparrow\downarrow}(-z)$
$F_{\uparrow\downarrow}(z) = -F_{\uparrow\uparrow}(z)$
From the two above one gets also $F_{\uparrow\uparrow}(z) = -F_{\uparrow\uparrow}(-z)$

0,6

By using the setup as it is, the whole curve can be measured by starting the measurements from three stable equilibrium points; the equilibrium point (z0) can be measured also by using the setup.

Configuration:



0,8

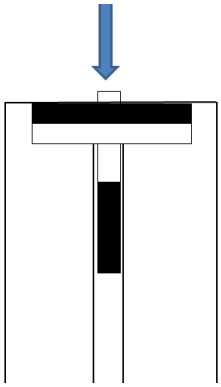
Measurements:

z0=0mm	m [g]	Δz [mm]
	0	0
	31	1
	55	2
	75	3
	97	4

119	5	
140	6	
158	7	
171	8	
170	9	
118	10	
85	10,25	
50	10,5	
10	10,75	

0,8

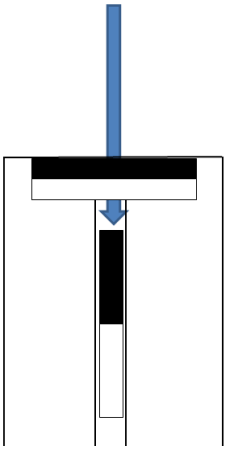
Configuration:



Measurements:

z0=10.8mm m [g]	Δz [mm]
0	0
233	1
538	2
927	3
996	3,5
1124	4
1154	4,5
1213	5
1212	5,5
1120	6
873	6,5
284	7
36	7,5

Configuration:

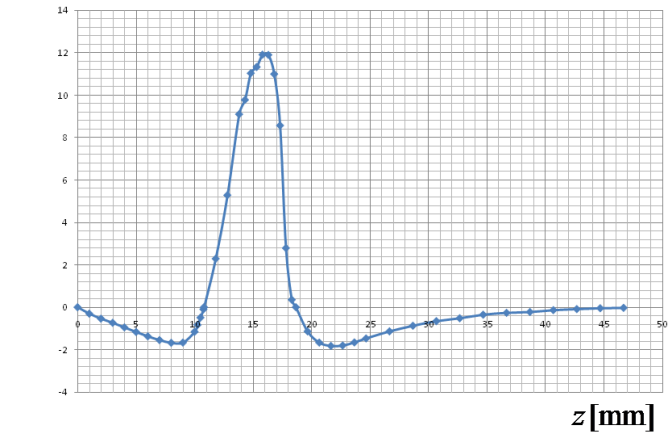


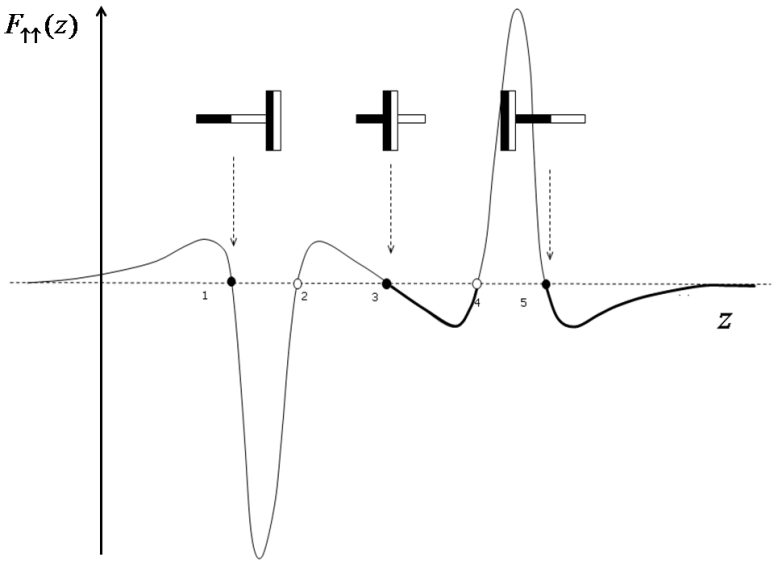
0,8

Measurements:

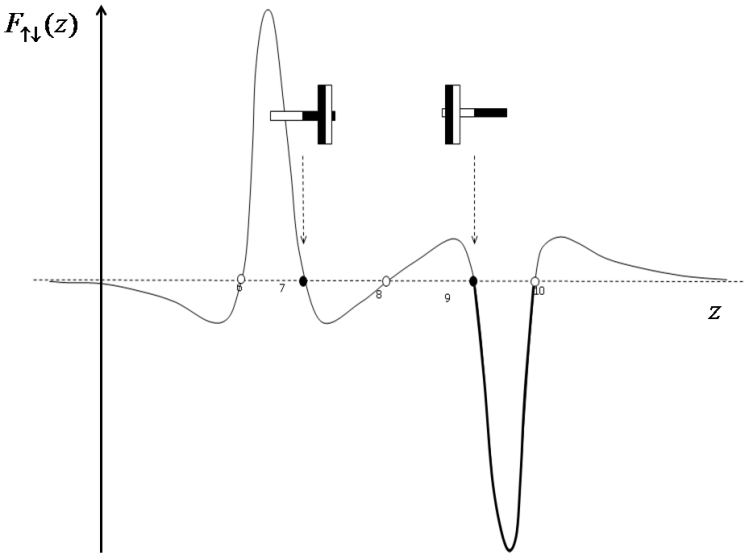
z0=18.6mm	m [g]	Δz [mm]
	0	0
	116	1
	170	2
	186	3
	184	4
	169	5
	150	6
	116	8
	89	10
	67	12
	53	14
	36	16
	27	18
	23	20
	14	22
	9	24
	5	26
	3	28

Task 3		Points
	Due to symmetry, it is sufficient to plot e.g., the following graph in detail:	2



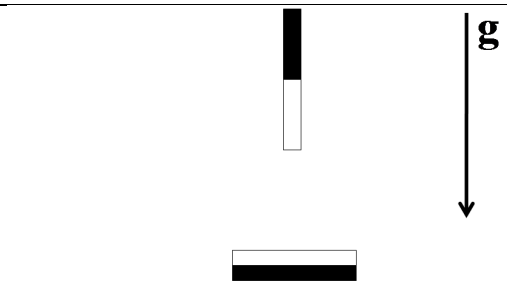
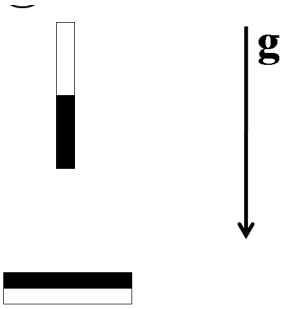


1



1

Task 4	Points

		0,5
	OR 	
Total:		10.0