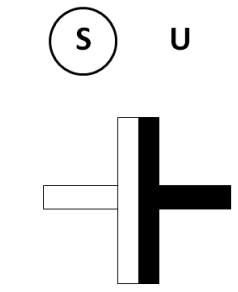
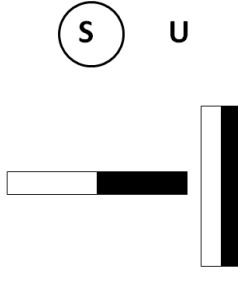
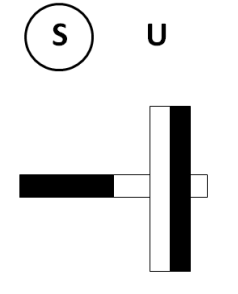
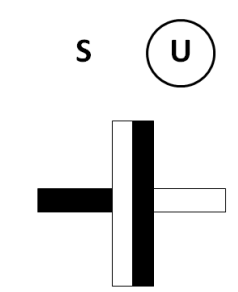
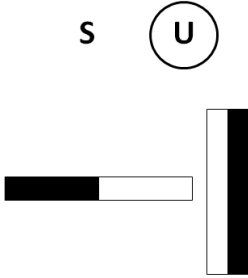
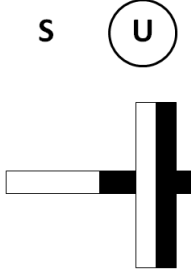
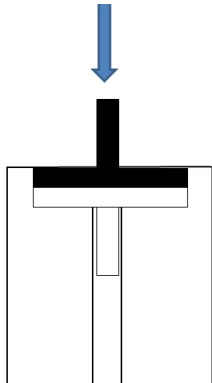
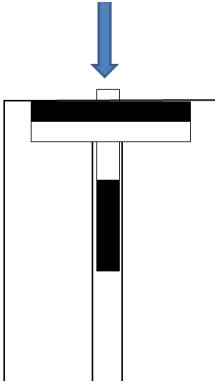


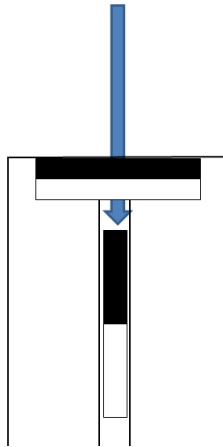
Solution - Exp. Problem 2

Task 1		Points
		0.25
		0.45
		0.45
		0.45

		0.45																		
		0.45																		
Task 2		Points																		
	<p>Symmetries that should be utilized in the measurements:</p> <table border="1" data-bbox="336 976 1110 1126"> <tr> <td>$F_{\uparrow\downarrow}(z) = -F_{\uparrow\downarrow}(-z)$</td> </tr> <tr> <td>$F_{\uparrow\downarrow}(z) = -F_{\uparrow\uparrow}(z)$</td> </tr> <tr> <td>From the two above one gets also $F_{\uparrow\uparrow}(z) = -F_{\uparrow\uparrow}(-z)$</td> </tr> </table>	$F_{\uparrow\downarrow}(z) = -F_{\uparrow\downarrow}(-z)$	$F_{\uparrow\downarrow}(z) = -F_{\uparrow\uparrow}(z)$	From the two above one gets also $F_{\uparrow\uparrow}(z) = -F_{\uparrow\uparrow}(-z)$	0,6															
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From the two above one gets also $F_{\uparrow\uparrow}(z) = -F_{\uparrow\uparrow}(-z)$																				
	<p>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 (z_0) can be measured also by using the setup.</p> <p>Configuration:</p>  <p>Measurements:</p> <table border="1" data-bbox="336 1787 764 2022"> <thead> <tr> <th>$z_0=0\text{mm}$</th> <th>m [g]</th> <th>Δz [mm]</th> </tr> </thead> <tbody> <tr> <td></td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>31</td> <td>1</td> </tr> <tr> <td></td> <td>55</td> <td>2</td> </tr> <tr> <td></td> <td>75</td> <td>3</td> </tr> <tr> <td></td> <td>97</td> <td>4</td> </tr> </tbody> </table>	$z_0=0\text{mm}$	m [g]	Δz [mm]		0	0		31	1		55	2		75	3		97	4	0,8
$z_0=0\text{mm}$	m [g]	Δz [mm]																		
	0	0																		
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	<table> <tbody> <tr><td>119</td><td>5</td></tr> <tr><td>140</td><td>6</td></tr> <tr><td>158</td><td>7</td></tr> <tr><td>171</td><td>8</td></tr> <tr><td>170</td><td>9</td></tr> <tr><td>118</td><td>10</td></tr> <tr><td>85</td><td>10,25</td></tr> <tr><td>50</td><td>10,5</td></tr> <tr><td>10</td><td>10,75</td></tr> </tbody> </table>	119	5	140	6	158	7	171	8	170	9	118	10	85	10,25	50	10,5	10	10,75																									
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	873	6,5																																										
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Configuration:



0,8

Measurements:

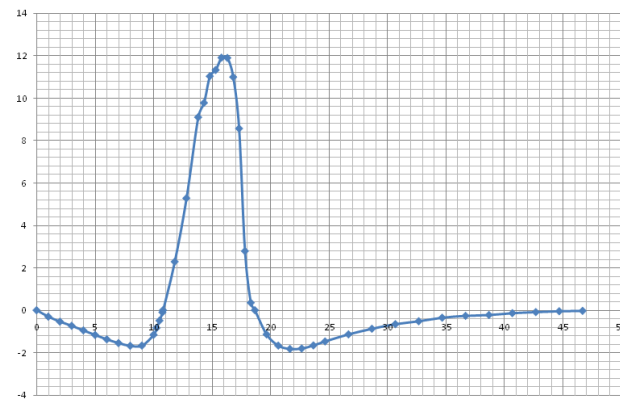
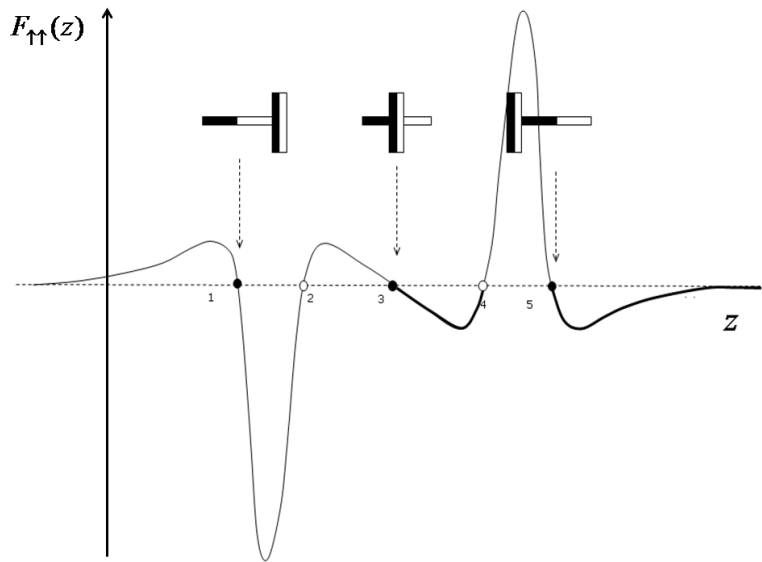
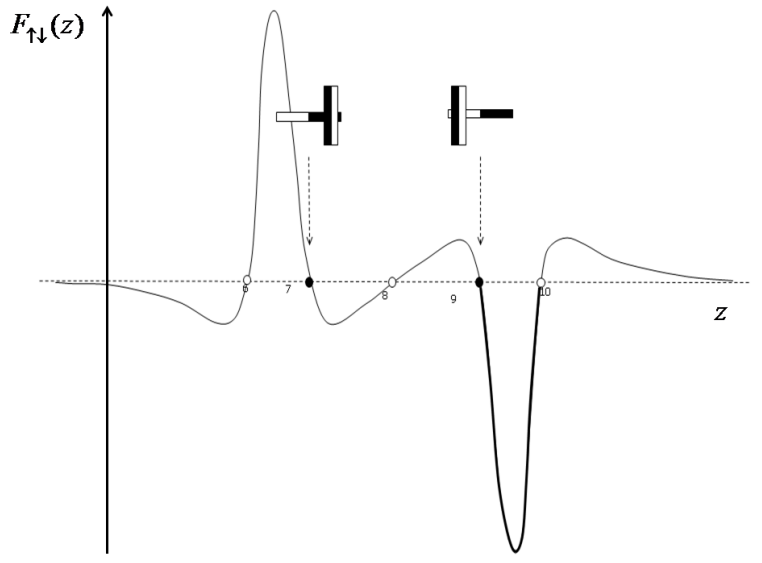
$z_0=18.6\text{mm}$	m [g]	Δz [mm]
	0	0
	116	1
	170	2
	186	3
	184	4
	169	5
	150	6
	116	8
	89	10
	67	12
	53	14
	36	16
	27	18
	23	20
	14	22
	9	24
	5	26
	3	28

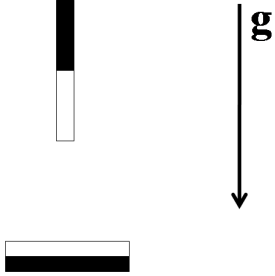
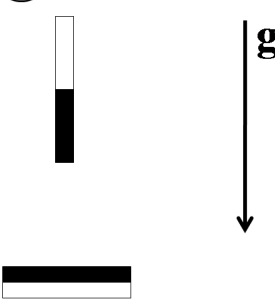
Task 3

Points

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

2

	<p>$F_{\uparrow\uparrow}(z)$ [N]</p>  <p style="text-align: right;">z [mm]</p>	
	<p>$F_{\uparrow\uparrow}(z)$</p>  <p style="text-align: right;">z</p>	<p>1</p>
	<p>$F_{\uparrow\downarrow}(z)$</p>  <p style="text-align: right;">z</p>	<p>1</p>

		0,5
	<p>OR</p> 	
Total:		10.0