Run 1 (Pure ice crystals growth roughenin	g)		
Static Data			
Size of cold stage:	51 mm		
Height of cold stage:	8 mm		
vacuum pressure (set)	50 Pa		
Z/TILT (distance of detector from stage)	5um		
· · · · · · · · · · · · · · · · · · ·			
vacuum current	12kv		
probe current	85		
Additional Comments	waited untill pressure was 70 Pa before turning on the temp		
Additional Comments			
Cinetic Data			
Fime Fime	Action/observation	Temperature (actual)	Crystal Size
2:4	6 truned on pressure		none
	1 set temp to -43 (pressure is at 70 Pa)	22.8	
	4 cystals observed		observed
			observed
	8 set temp to -32 to slow growth for images	-34.7	
	taking 3D image (case1.0)	-32.8	
3:0	1 crystal still growing	-32.8	
3:0	2 taking 3D image (case1.1)	-32.7	
3:0	taking 3D image (case1.2)	-32.7	
	7 taking 3D image (case1.3) of up close roughening	-32.7	
	taking 3D image (case1.4)	-32.7	
	3 taking 3D image (case1.5)	-32.7	
	taking 3D image (case1.6) of end of crystal (up close)	-32.7	
ook image			
3:2	1 taking 3D image (case1.7)	-32.7	
3:3	2 ended experiment	-32.7	
Run 1 (K2SO4 ice crystals growth rougher			
Static Data			
Size of cold stage:	51 mm		
Height of cold stage:	8 mm		
vacuum pressure (set)	50 Pa		
Z/TILT (distance of detector from stage)	5um		
racuum current	12kv		
probe current	85		
Additional Comments	waited untill pressure was 80 Pa before turning on the temp		
Additional Comments	name a man process in a sole of a sole of a man g on the temp		
Kinetic Data			
	A C 11 C	_	0 110
<u>Fime</u>	Action/observation		Cryetal Siza
1.1		Temperature (actual)	Crystal Size
	turned on pressure		none
	turned on pressure set temp to -34		
4:5	·		none
4:5 4:5	set temp to -34		none
4:5 4:5 4:5	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33	25.5	none
4:5 4:5 5:5	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0)	25.5 -34.7 -33.8	none
4:5 4:5 4:5 5:6 4:5	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32	-34.7 -33.8 -33.7	none
4:5 4:5 4:5 5:5 4:5	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1)	-34.7 -33.8 -33.7 -32.8	none
4:5 4:5 4:5 5:6 4:5 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2)	-34.7 -33.8 -33.7 -32.8 -32.8	none
4:5 4:5 4:5 5:5 4:5 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3)	-34.7 -33.8 -33.7 -32.8 -32.8	none
4:5 4:5 5:5 4:5 4:5 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4)	-34.7 -33.8 -33.7 -32.8 -32.8	none
4:5 4:5 5:5 4:5 4:5 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3)	-34.7 -33.8 -33.7 -32.8 -32.8	none
4:5 4:5 5:5 4:5 5:0 5:0 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4)	-34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 5:5 4:5 4:5 5:0 5:0 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6)	-34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 5:5 4:5 4:5 5:0 5:0 5:0 5:0	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal)	-34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:5 5:5 5:0 5:0 5:0 5:1 5:1	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8)	-34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:5 5:0 5:0 5:0 5:1 5:1 5:1	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case 1.8)	25.5 -34.7 -33.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:5 5:5 5:0 5:0 5:0 5:1 5:1 5:1	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.9)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:5 5:0 4:5 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1	temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.11)	25.5 -34.7 -33.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:5 5:0 4:5 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1	set temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.9)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8	none
4:5 4:5 4:5 5:6 4:5 5:6 4:5 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2	temp to -34 temp is at -25 and pressure at 60 Pa took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.11)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7	none
4:5 4:5 4:5 5:5 5:0 4:5 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 5:6 4:5 5:0 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.13) took 3D image (case1.14)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 5:5 4:5 5:0 4:5 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:2	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 5:6 4:5 5:6 4:5 5:0 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 4:5 5:5 4:5 4:5 5:6 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.6) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 4:5 5:5 4:5 4:5 5:6 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 5:5 5:5 4:5 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.6) took 3D image (case1.6) took 3D image (case 1.7) (up close of bottom of crystal) took 3D image (case 1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 4:5 5:5 4:5 4:5 5:6 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17) took 3D image (case1.17) took 3D image (case1.17) took 3D image (case1.18)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7 -32.7	none
4:5 4:5 4:5 5:5 5:5 4:5 4:5 4:5 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3 5:3 5:3	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17) took 3D image (case1.18) took 3D image (case1.18) took 3D image (case1.18) took 3D image (case1.19) took 3D image (case1.19) took 3D image (case1.20)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7	none
4:5 4:5 4:5 5:5 4:5 4:5 4:5 5:6 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:3 5:3 5:3 5:3 5:4 5:4	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17) took 3D image (case1.18) took 3D image (case1.18) took 3D image (case1.19) took 3D image (case1.19) took 3D image (case1.19) took 3D image (case1.20) took 3D image (case1.21) (up close of bottom right)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7	none
4:5 4:5 4:5 4:5 5:5 4:5 4:5 5:0 5:0 5:0 5:0 5:0 5:1 5:1 5:1 5:1 5:1 5:2 5:2 5:2 5:2 5:2 5:3 5:3 5:3 5:3 5:4 5:4 5:4 5:4	temp to -34 temp is at -25 and pressure at 60 Pa set temp to -33 took 3D image (case1.0) set temp to -32 took 3D image (case1.1) took 3D image (case1.2) took 3D image (case1.3) took 3D image (case1.4) took 3D image (case1.5) (up close of bottom of crystal) took 3D image (case1.6) took 3D image (case1.7) (up close of bottom of crystal) took 3D image (case1.8) took 3D image (case1.9) took 3D image (case1.10) took 3D image (case1.11) took 3D image (case1.12) (of side of crystal) took 3D image (case1.13) took 3D image (case1.14) took 3D image (case1.15) took 3D image (case1.16) (up close of top) took 3D image (case1.17) took 3D image (case1.18) took 3D image (case1.18) took 3D image (case1.18) took 3D image (case1.19) took 3D image (case1.19) took 3D image (case1.20)	25.5 -34.7 -33.8 -33.7 -32.8 -32.8 -32.8 -32.8 -32.8 -32.8 -32.7	none