

Item DR 2: EBSD data

DR 2.1 Clast-poor impact melt

Grain 3

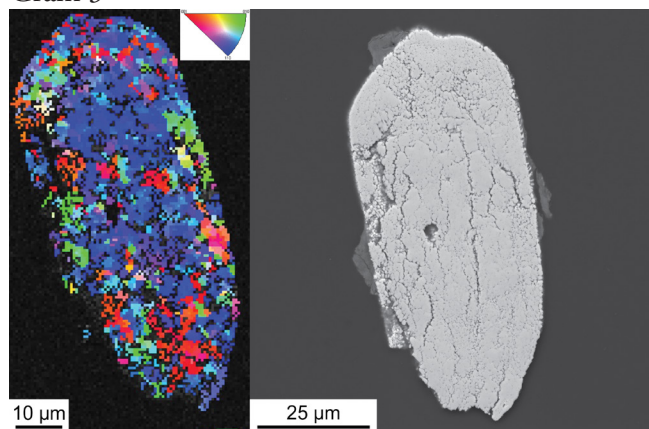


Fig. DR 2.1.1 Left) All phase IPF image of EBSD analyses; Step = 0.558 μm; Grid = 94x165. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 97.2 μm.

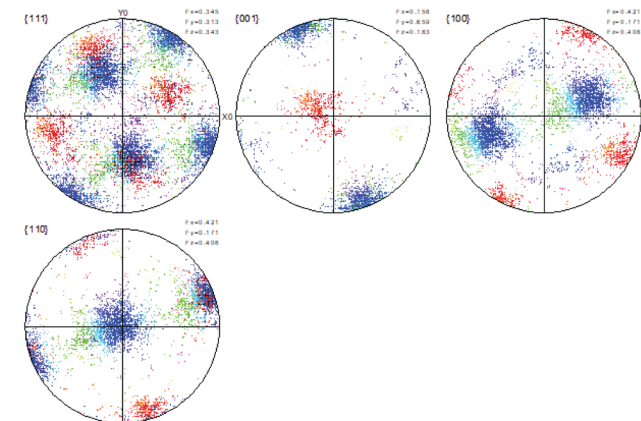


Fig. DR 2.1.2 Pole figures; Zircon (4/mmm); Complete data set; 5752 data points; Equal area projection; Lower hemispheres.

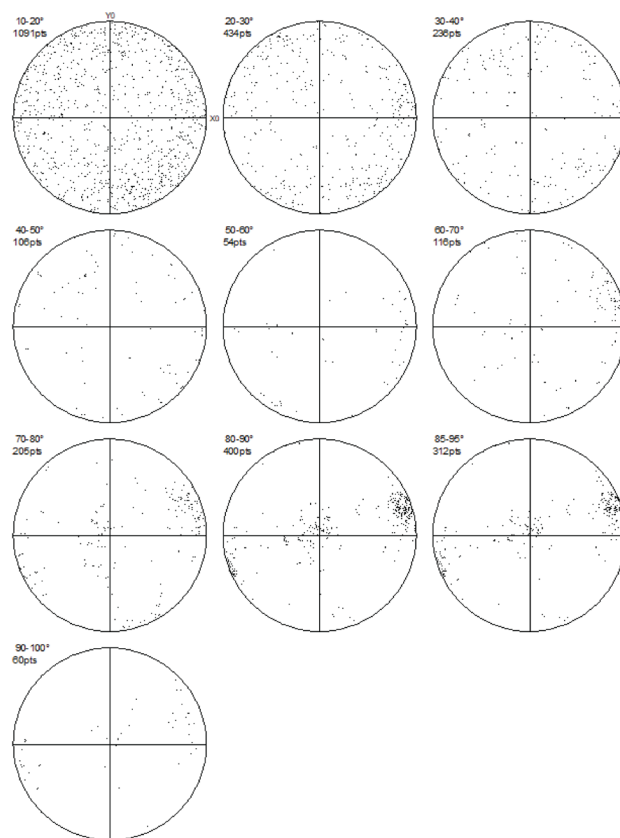


Fig. DR 2.1.3 Rotation axes; Zircon (4/mmm); Complete data set; 3014 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	34.90 %
Speed of Acquisition	6.59 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.56	87	49.23	17.82	18.00	85.00	1.06	0.30	0.49	1.78
Zircon	33.59	5210	63.19	14.30	17.00	126.00	0.81	0.18	0.24	2.00
ZrO2 mono-clinic	0.75	116	34.16	15.31	13.00	79.00	1.28	0.28	0.76	2.00
Zero Solutions	65.10	10097	28.01	11.47	0.00	93.00				

Grain 4

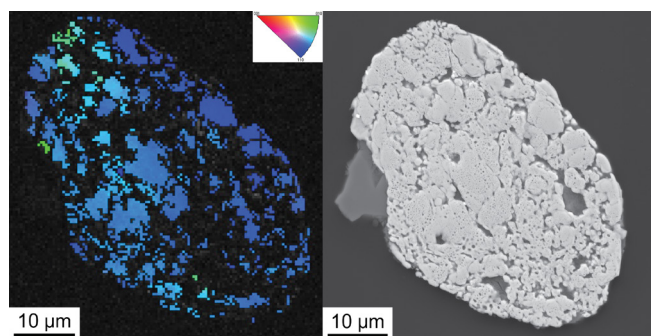


Fig. DR 2.1.4 Left) All phase IPF image of EBSD analyses; Step = 0.406 µm; Grid = 129x135. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 55.9 µm.

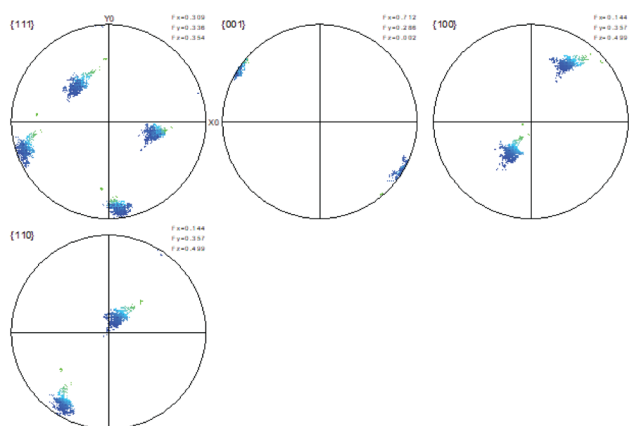


Fig. DR 2.1.5 Pole figures; Zircon (4/mmm); Complete data set; 2727 data points; Equal area projection; Lower hemispheres.

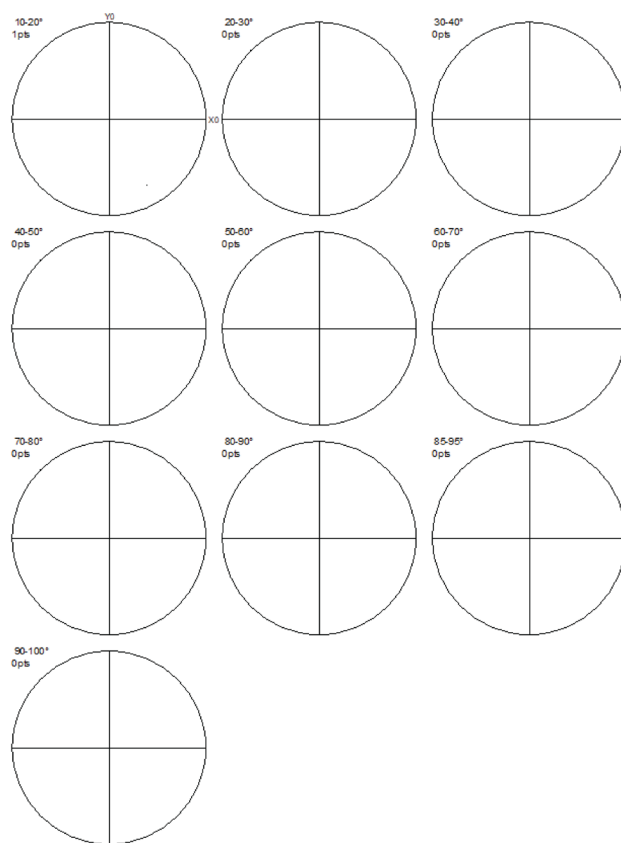


Fig. DR 2.1.6 Rotation axes; Zircon (4/mmm); Complete data set; 1 data point; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	17.04 %
Speed of Acquisition	6.64 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.31	54	30.96	10.84	18.00	59.00	1.19	0.32	0.71	1.96
Zircon	15.84	2759	50.71	12.05	12.00	95.00	0.88	0.19	0.36	1.97
Zr02 mono-clinic	0.89	155	27.75	9.37	12.00	61.00	1.25	0.29	0.64	1.97
Zero Solutions	82.96	14447	26.08	7.65	0.00	92.00				

Grain 6

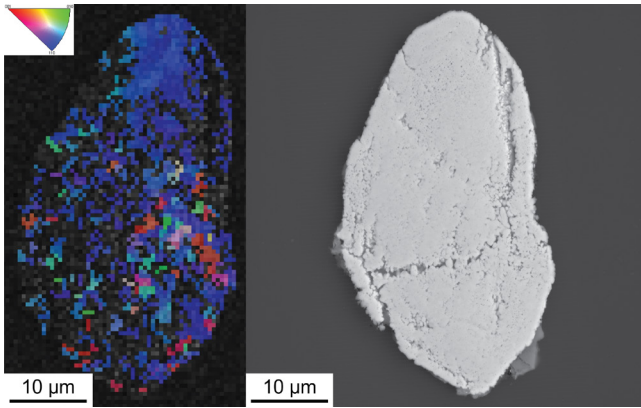


Fig. DR 2.1.7 Left) All phase IPF image of EBSD analyses; Step = 0.525 µm; Grid = 105x69. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 53.4 µm.

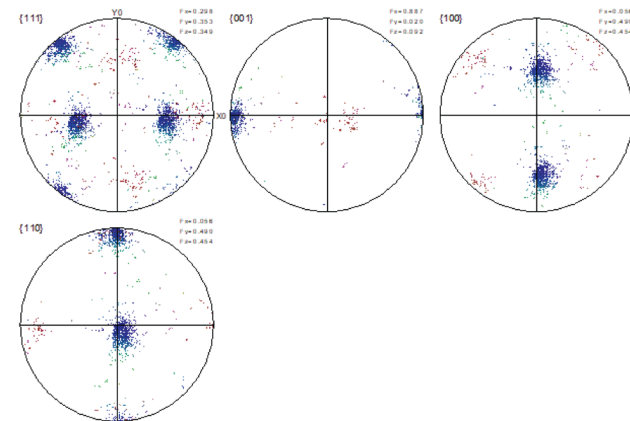


Fig. DR 2.1.8 Pole figures; Zircon (4/mmm); Complete data set; 1692 data points; Equal area projection; Lower hemispheres.

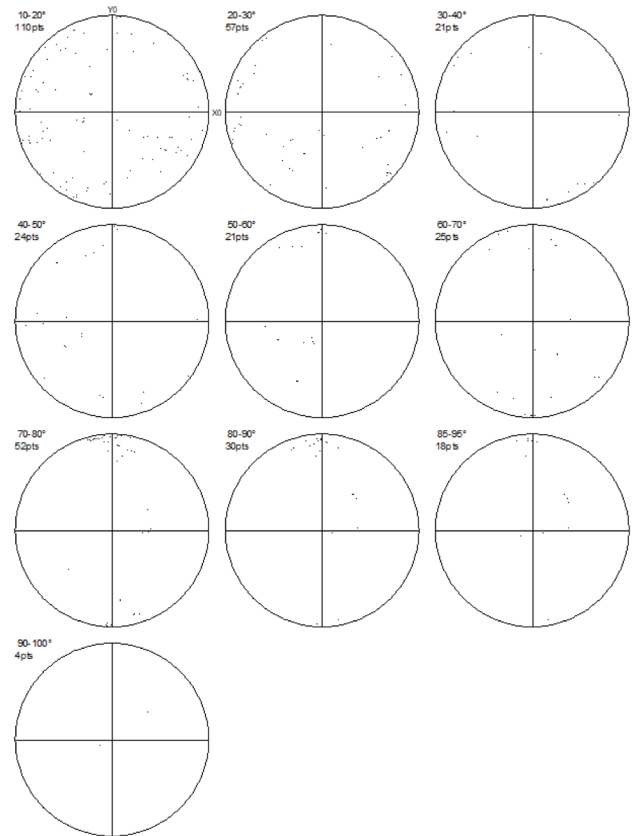


Fig. DR 2.1.9 Rotation axes; Zircon (4/mmm); Complete data set; 362 data point; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	24.44 %									
Speed of Acquisition	6.53 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.25	18	31.22	10.35	20.00	64.00	1.19	0.32	0.47	1.79
Zircon	23.33	1690	63.50	16.39	20.00	121.00	0.78	0.18	0.25	1.90
ZrO2 monoclinic	0.87	63	31.54	9.93	20.00	72.00	1.33	0.29	0.82	1.99
Zero Solutions	75.56	5474	30.01	8.56	0.00	85.00				

Grain 7

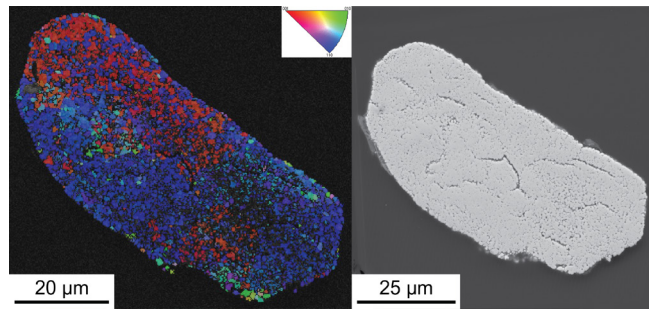


Fig. DR 2.1.10 Left) All phase IPF image of EBSD analyses; Step = 0.214 µm; Grid = 354x347. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.00 mm; View field = 78.0 µm.

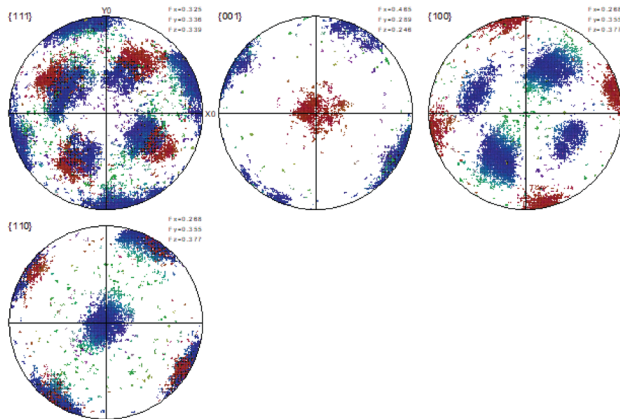


Fig. DR 2.1.11 Pole figures; Zircon (4/mmm); Complete data set; 27531 data points; Equal area projection; Lower hemispheres.

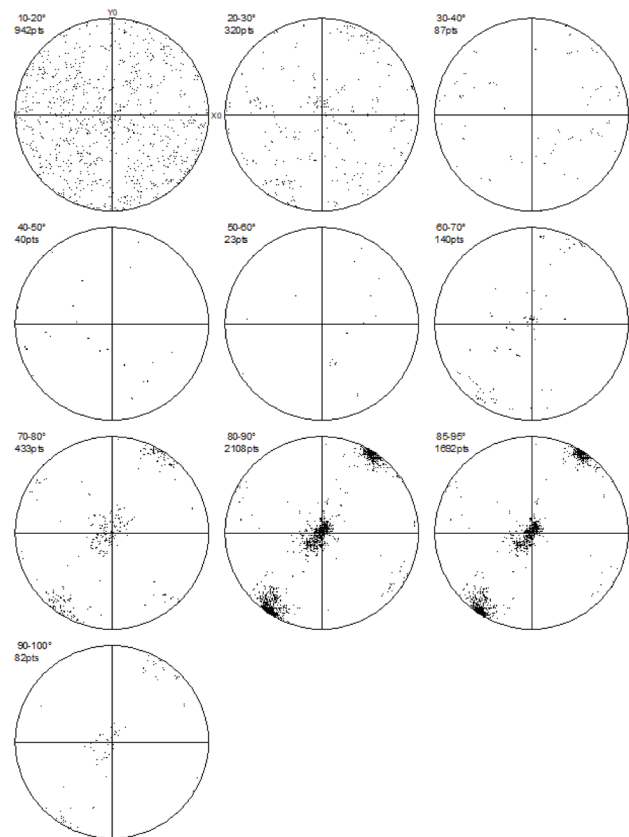


Fig. DR 2.1.12 Rotation axes; Zircon (4/mmm); Complete data set; 5867 data point; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	22.33 %
Speed of Acquisition	6.70 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.30	373	37.73	14.31	17.00	96.00	1.24	0.32	0.50	1.99
Zircon	21.12	25943	62.83	15.24	17.00	139.00	0.84	0.19	0.22	1.99
ZrO2 mono-clinic	0.90	1110	31.75	10.67	15.00	78.00	1.29	0.30	0.52	2.00
Zero Solutions	77.67	95405	29.63	8.79	0.00	104.00				

Grain 12

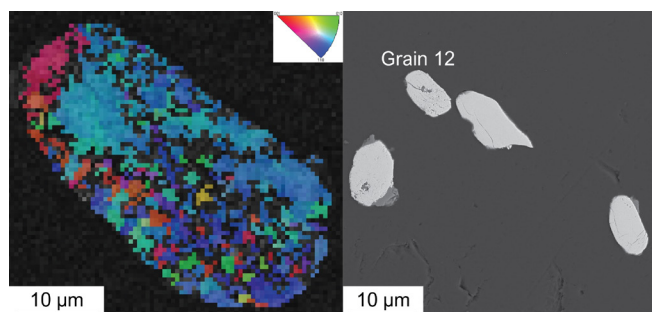


Fig. DR 2.1.13 Left) All phase IPF image of EBSD analyses; Step = 0.501 µm; Grid = 88x82. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.97 mm; View field = 228.0 µm.

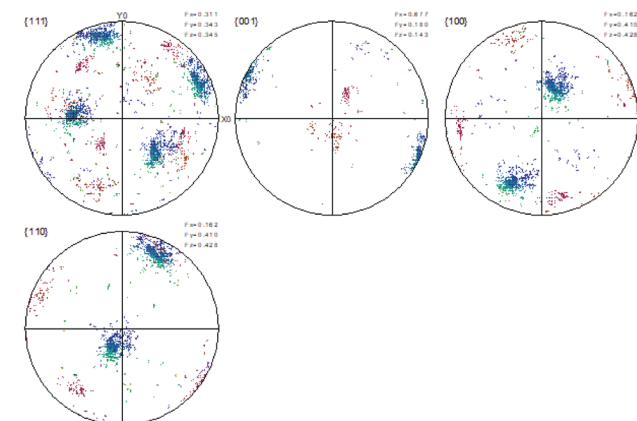


Fig. DR 2.1.14 Pole figures; Zircon (4/mmm); Complete data set; 1892 data points; Equal area projection; Lower hemispheres.

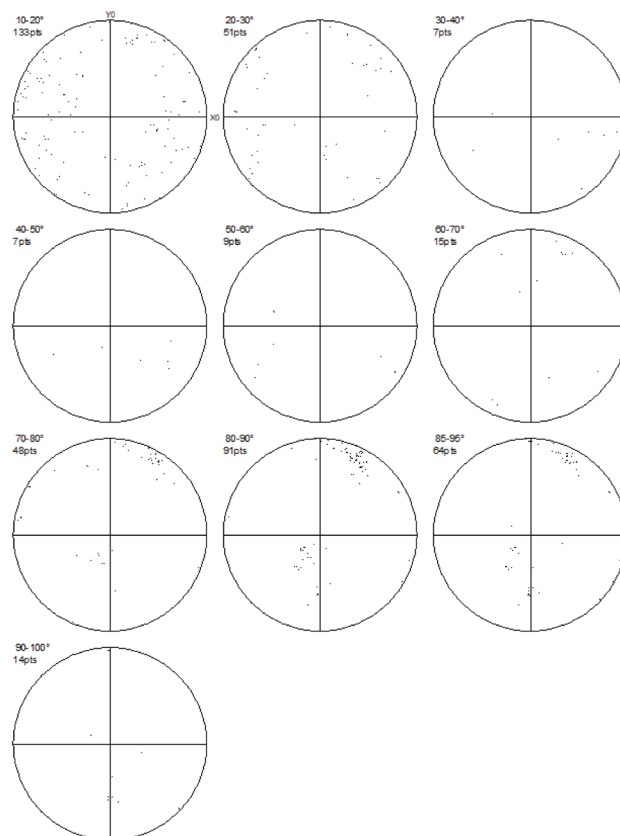


Fig. DR 2.1.15 Rotation axes; Zircon (4/mmm); Complete data set; 439 data point; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	25.44 %
Speed of Acquisition	6.48 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.21	15	42.53	15.79	18.00	74.00	1.22	0.31	0.69	1.87
Zircon	24.38	1759	69.13	16.93	19.00	127.00	0.80	0.18	0.23	1.98
ZrO2 monoclinic	0.86	62	35.89	16.32	17.00	111.00	1.26	0.30	0.77	2.00
Zero Solutions	74.56	5380	29.59	9.26	0.00	99.00				

Grain 15

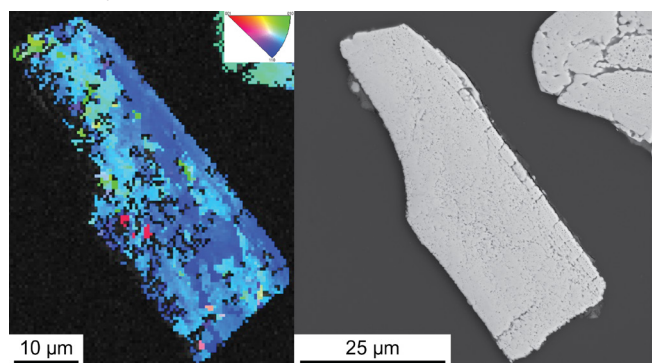


Fig. DR 2.1.16 Left) All phase IPF image of EBSD analyses; Step = 0.466 μm; Grid = 125x112. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 62.7 μm.

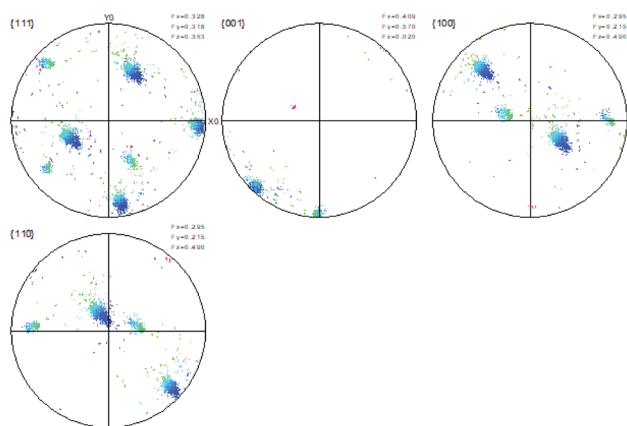


Fig. DR 2.1.17 Pole figures; Zircon (4/mmm); Complete data set; 4209 data points; Equal area projection; Lower hemispheres.

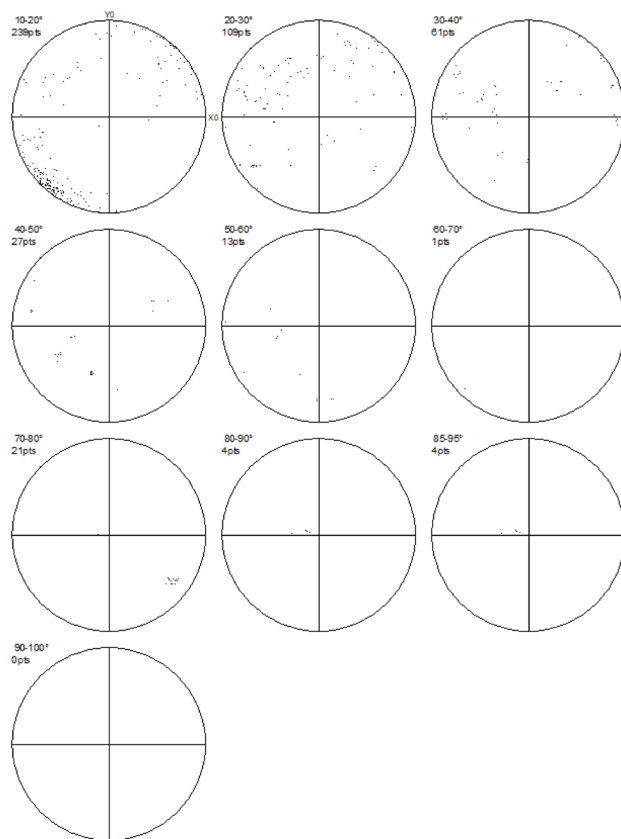


Fig. DR 2.1.18 Rotation axes; Zircon (4/mmm); Complete data set; 479 data point; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	28.10 %
Speed of Acquisition	6.64 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.25	35	37.66	20.18	16.00	92.00	1.23	0.30	0.72	1.93
Zircon	27.09	3792	63.31	13.88	17.00	103.00	0.79	0.17	0.25	1.81
ZrO2 mono-clinic	0.76	107	28.72	12.15	14.00	70.00	1.28	0.29	0.57	1.97
Zero Solutions	71.90	10066	25.64	9.08	0.00	84.00				

Grain 17

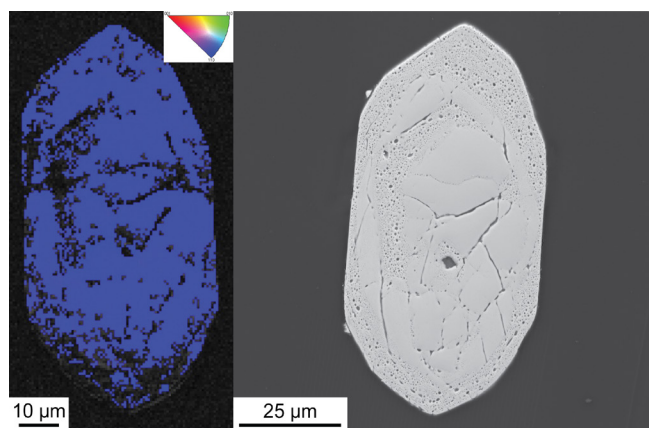


Fig. DR 2.1.19 Left) All phase IPF image of EBSD analyses; Step = 0.584 µm; Grid = 98x180. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 104.0 µm.

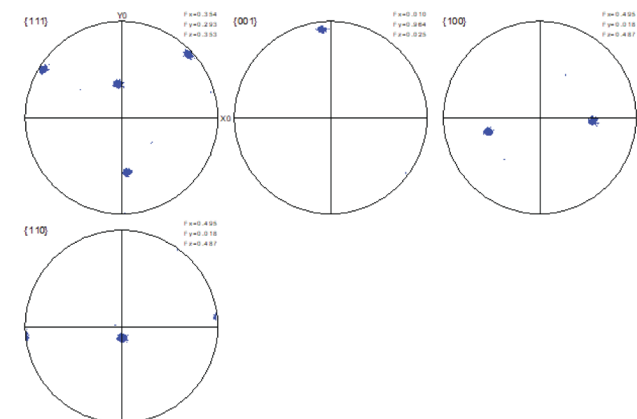


Fig. DR 2.1.20 Pole figures; Zircon (4/mmm); Complete data set; 7719 data points; Equal area projection; Lower hemispheres.

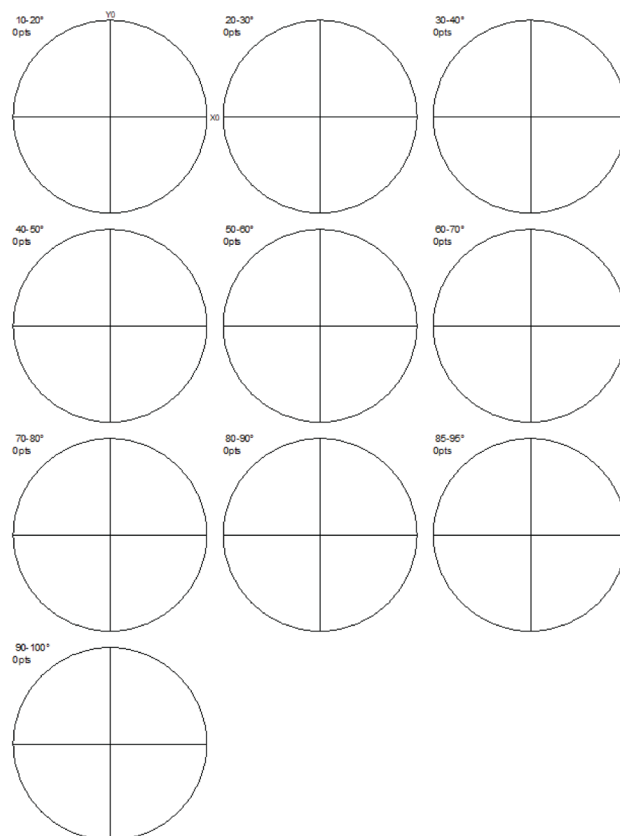


Fig. DR 2.1.21 Rotation axes; Zircon (4/mmm); Complete data set; 0 data point; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	41.64 %
Speed of Acquisition	6.60 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.53	94	49.05	16.08	15.00	82.00	1.04	0.28	0.37	1.86
Zircon	40.35	7118	63.24	13.26	18.00	107.00	0.81	0.19	0.22	1.94
ZrO2 monoclinic	0.75	133	30.67	12.00	15.00	78.00	1.32	0.32	0.71	1.98
Zero Solutions	58.36	10295	29.40	11.39	0.00	93.00				

Grain 18

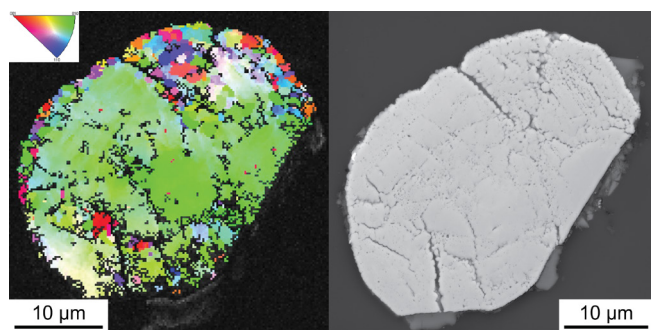


Fig. DR 2.1.22 Left) All phase IPF image of EBSD analyses; Step = 0.226 µm; Grid = 162x184. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 104.0 µm.

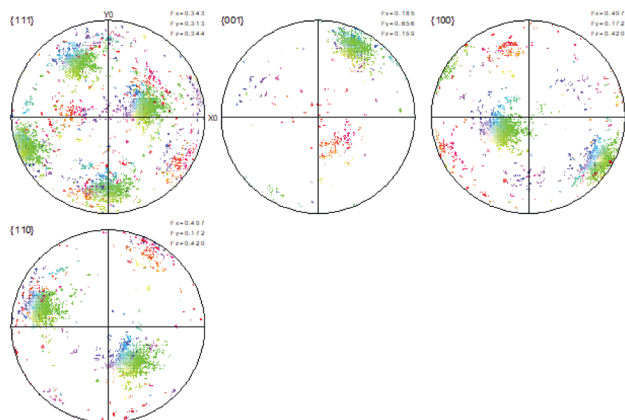


Fig. DR 2.1.23 Pole figures; Zircon (4/mmm); Complete data set; 11261 data points; Equal area projection; Lower hemispheres.

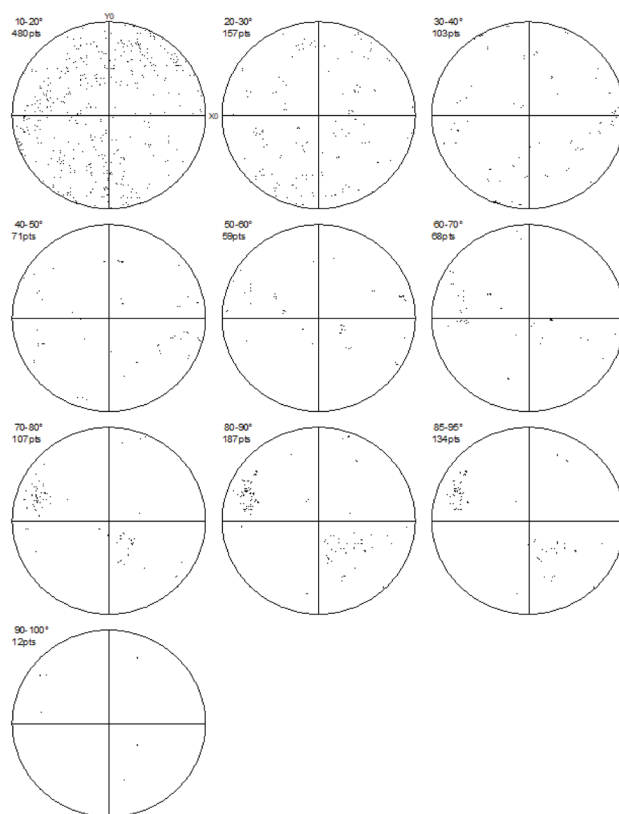


Fig. DR 2.1.24 Rotation axes; Zircon (4/mmm); Complete data set; 1378 data point; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	35.96 %
Speed of Acquisition	6.66 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.93	278	58.79	19.58	12.00	99.00	1.03	0.30	0.45	1.97
Zircon	34.34	10235	70.25	14.50	14.00	121.00	0.84	0.18	0.24	1.93
Zr02 mono-clinic	0.69	207	33.90	16.74	10.00	89.00	1.26	0.29	0.57	1.97
Zero Solutions	64.04	19088	28.80	12.77	0.00	120.00				

Grain 20

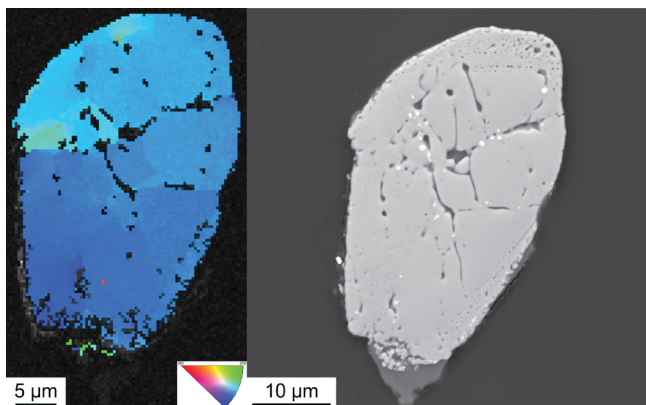


Fig. DR 2.1.25 Left) All phase IPF image of EBSD analyses; Step = 0.332 μm; Grid = 90x160. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.00 mm; View field = 52.1 μm.

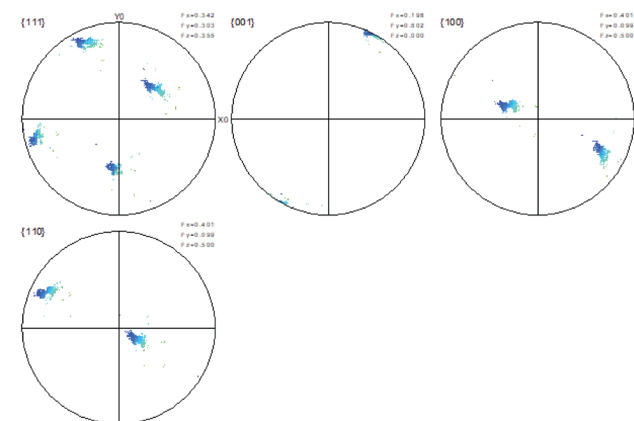


Fig. DR 2.1.26 Pole figures; Zircon (4/mmm); Complete data set; 7224 data points; Equal area projection; Lower hemispheres.

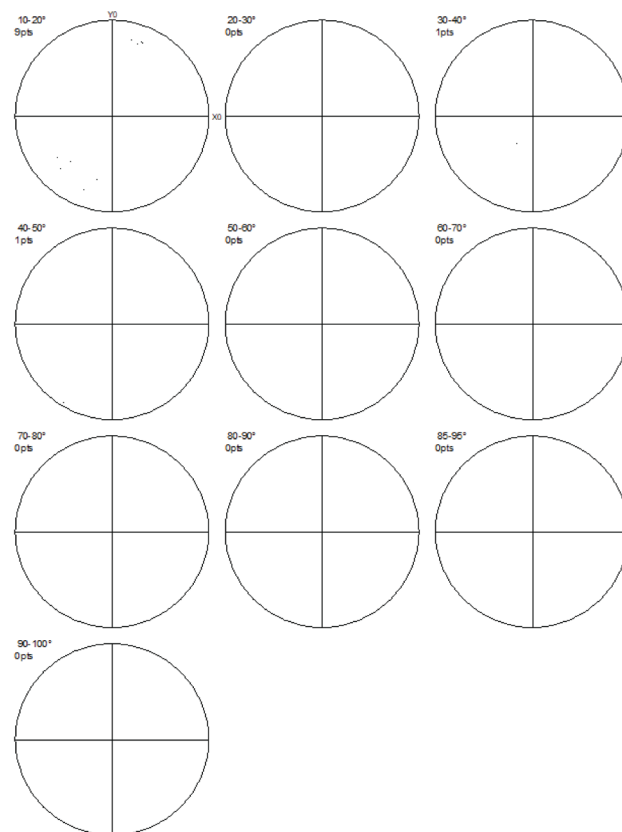


Fig. DR 2.1.27 Rotation axes; Zircon (4/mmm); Complete data set; 11 data point; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	48.26 %									
Speed of Acquisition	6.59 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.24	34	54.62	21.14	17.00	84.00	0.99	0.26	0.64	1.66
Zircon	47.60	6855	73.96	13.63	16.00	116.00	0.76	0.18	0.29	1.99
ZrO2 monoclinic	0.42	60	33.60	14.55	17.00	77.00	1.16	0.33	0.46	1.93
Zero Solutions	51.74	7451	27.19	11.90	0.00	174.00				

Grain 21

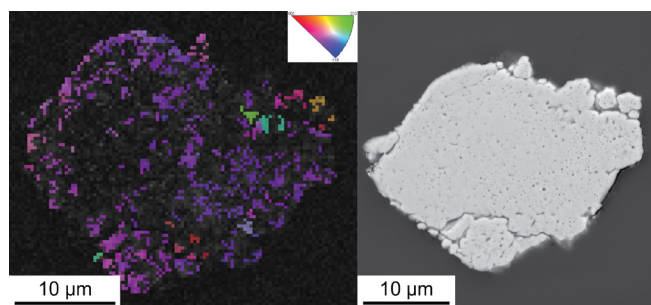


Fig. DR2.1.28 Left) All phase IPF image of EBSD analyses; Step = 0.3088 μm; Grid = 113x98. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.01 mm; View field = 35.1 μm.

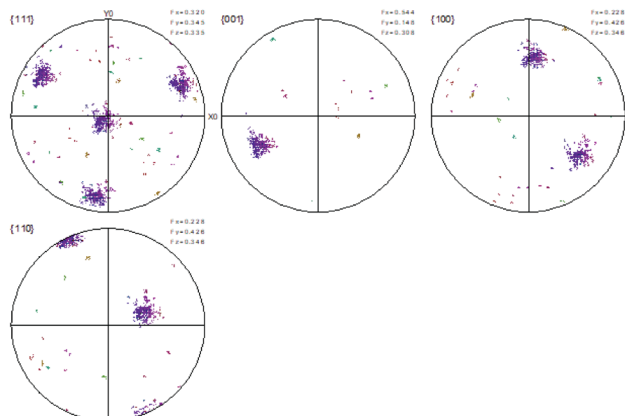


Fig. DR 2.1.29 Pole figures; Zircon (4/mmm); Complete data set; 1059 data points; Equal area projection; Lower hemispheres.

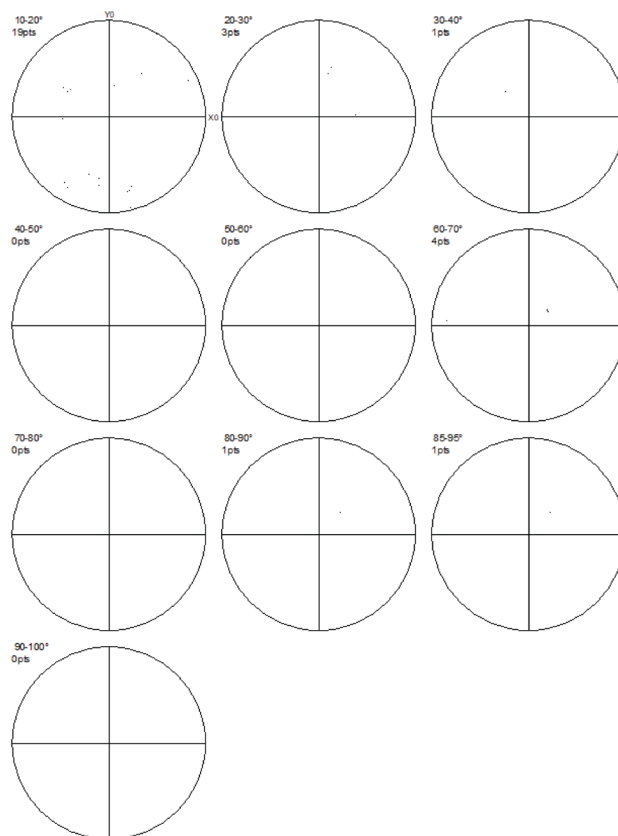


Fig. DR 2.1.30 Rotation axes; Zircon (4/mmm); Complete data set; 29 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	11.95 %									
Speed of Acquisition	6.54 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.37	41	32.37	10.51	16.00	53.00	1.27	0.28	0.70	1.94
Zircon	10.47	1159	55.09	14.58	18.00	127.00	0.89	0.21	0.31	1.96
Zr02 mono-clinic	1.11	123	33.66	10.66	16.00	73.00	1.29	0.28	0.70	1.98
Zero Solutions	88.05	9751	30.51	8.59	0.00	83.00				

Grain 39

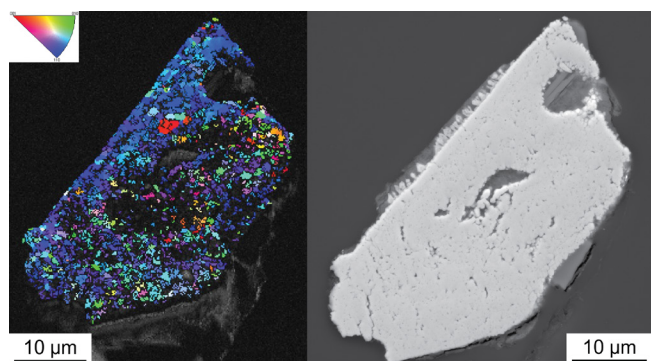


Fig. DR 2.1.31 Left) All phase IPF image of EBSD analyses; Step = 0.165 µm; Grid = 255x336. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.00 mm; View field = 48.6 µm.

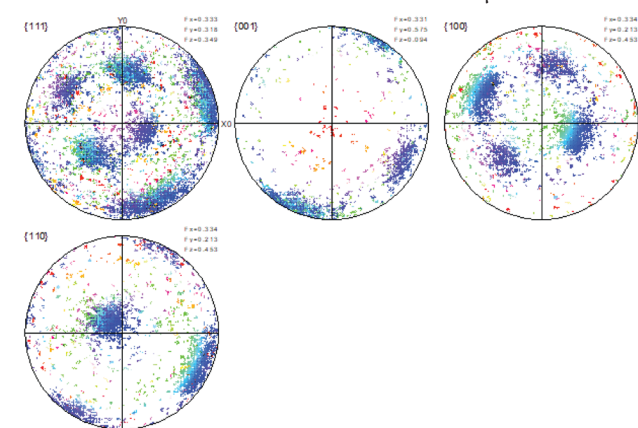


Fig. DR 2.1.32 Pole figures; Zircon (4/mmm); Complete data set; 10562 data points; Equal area projection; Lower hemispheres.

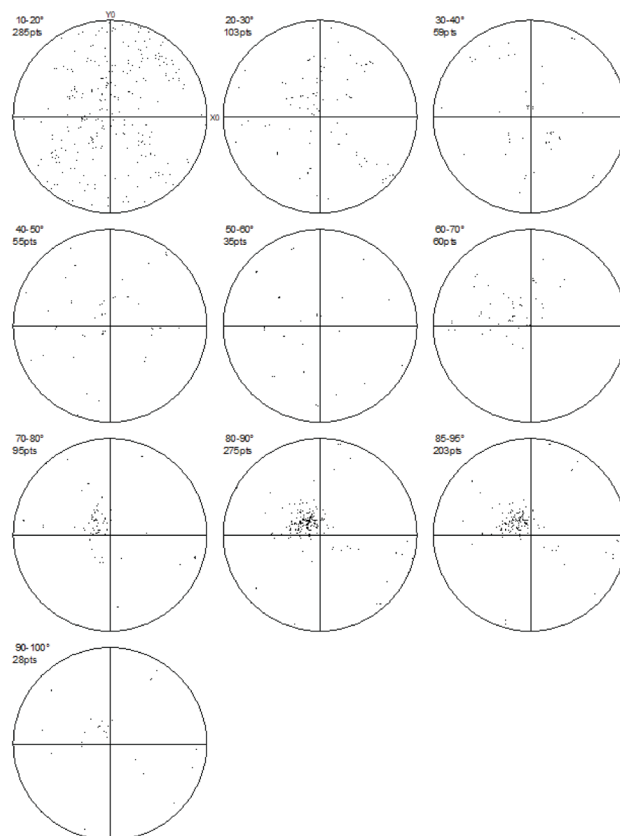


Fig. DR 2.1.33 Rotation axes; Zircon (4/mmm); Complete data set; 1198 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	13.49 %
Speed of Acquisition	6.70 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.36	309	37.48	15.00	12.00	80.00	1.14	0.29	0.50	1.94
Zircon	12.12	10383	53.62	13.03	13.00	116.00	0.88	0.20	0.29	2.00
ZrO2 monoclinic	1.01	868	31.09	13.03	11.00	109.00	1.27	0.30	0.57	2.00
Zero Solutions	86.51	74120	28.64	12.62	0.00	137.00				

Grain 41

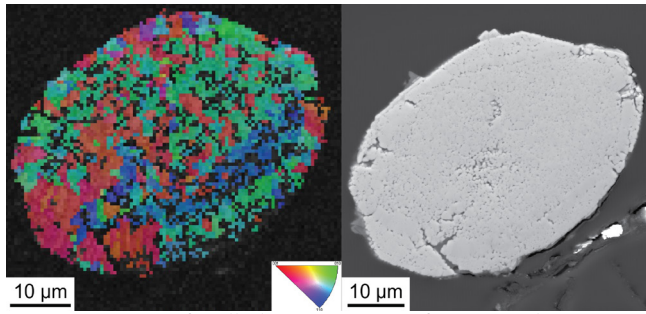


Fig. DR 2.1.34 Left) All phase IPF image of EBSD analyses; Step = 0.543 μm; Grid = 103x95. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.00 mm; View field = 55.2 μm.

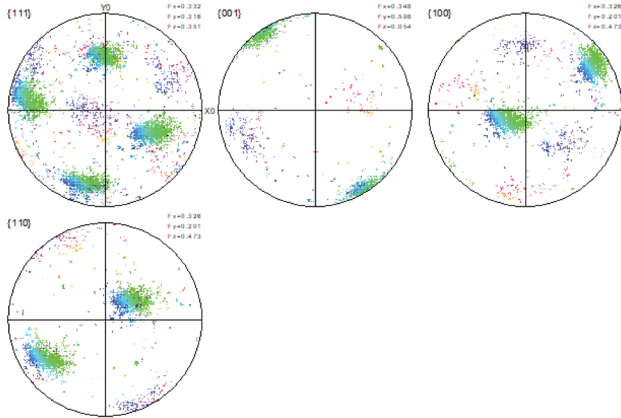


Fig. DR 2.1.35 Pole figures; Zircon (4/mmm); Complete data set; 4231 data points; Equal area projection; Lower hemispheres.

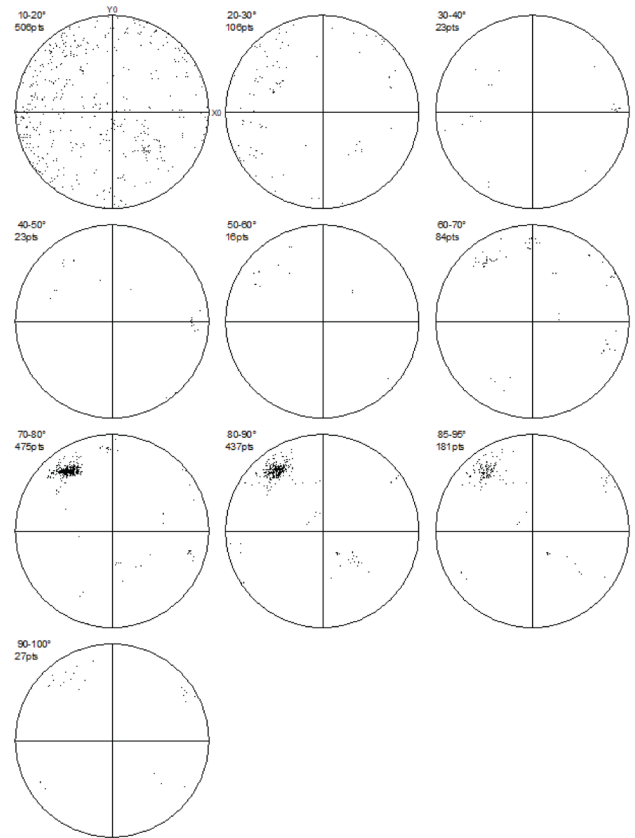


Fig. DR 2.1.36 Rotation axes; Zircon (4/mmm); Complete data set; 1878 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	39.64 %
Speed of Acquisition	6.52 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.32	31	37.81	15.16	17.00	80.00	1.22	0.30	0.58	1.88
Zircon	38.61	3778	70.34	19.00	21.00	135.00	0.74	0.18	0.26	1.88
ZrO2 mono-clinic	0.72	70	34.59	12.81	20.00	77.00	1.23	0.27	0.67	1.93
Zero Solutions	60.36	5906	31.16	9.93	0.00	109.00				

Grain 44

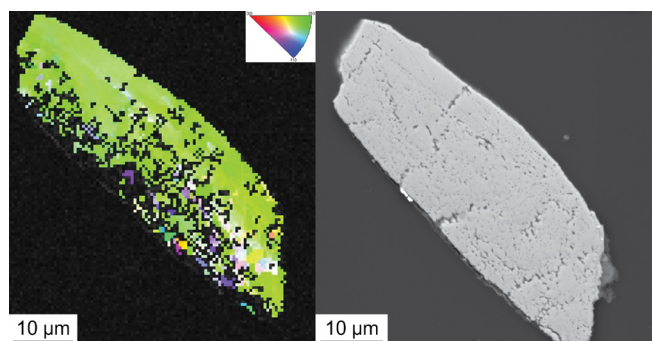


Fig. DR 2.1.37 Left) All phase IPF image of EBSD analyses; Step = 0.479 µm; Grid = 110x121. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 55.2 µm.

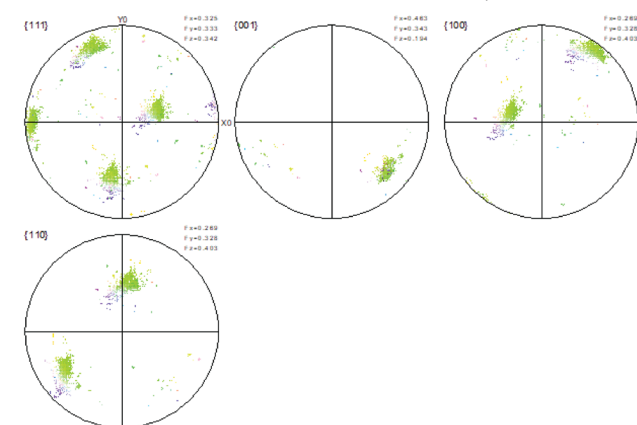


Fig. DR 2.1.38 Pole figures; Zircon (4/mmm); Complete data set; 2990 data points; Equal area projection; Lower hemispheres.

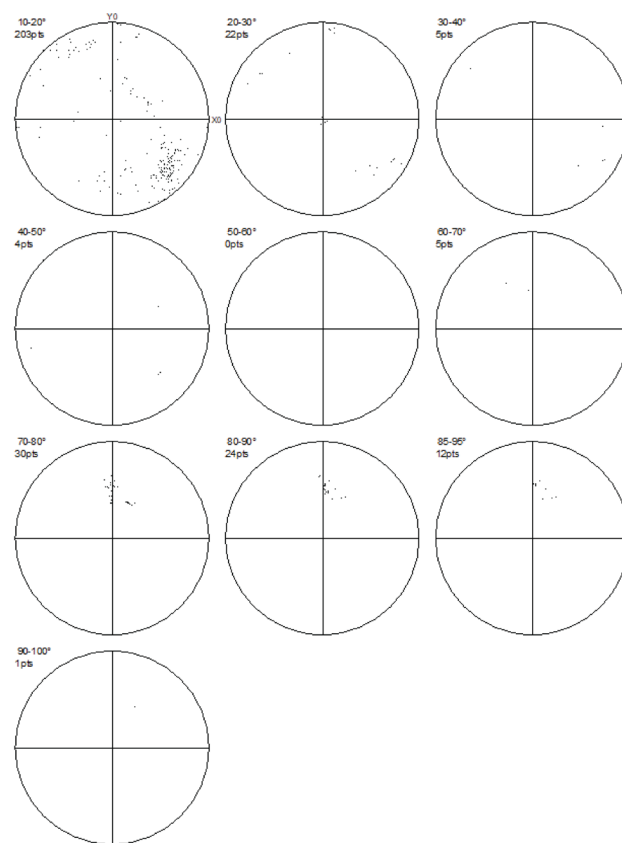


Fig. DR 2.1.39 Rotation axes; Zircon (4/mmm); Complete data set; 306 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	21.92 %
Speed of Acquisition	6.62 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.27	36	32.19	11.20	15.00	62.00	1.21	0.29	0.69	1.90
Zircon	20.89	2780	60.26	14.69	15.00	105.00	0.80	0.19	0.27	1.91
ZrO2 monoclinic	0.76	101	25.25	7.89	15.00	56.00	1.29	0.30	0.68	1.98
Zero Solutions	78.08	10393	25.11	8.04	0.00	94.00				

Grain 45

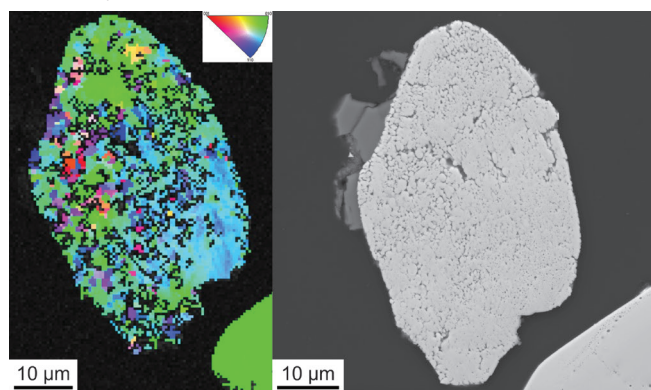


Fig. DR 2.1.40 Left) All phase IPF image of EBSD analyses; Step = 0.442 μm; Grid = 103x148. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 63.2 μm.

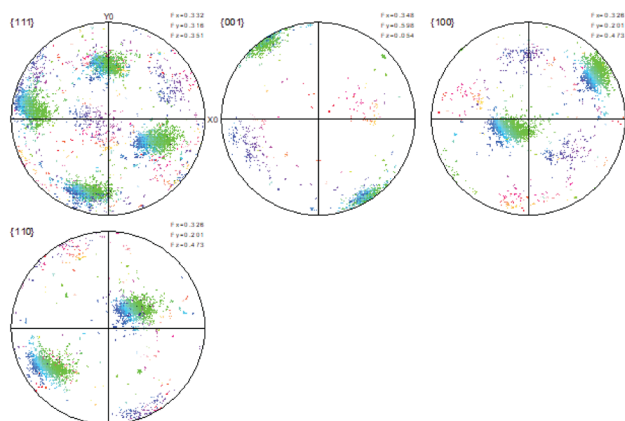


Fig. DR 2.1.41 Pole figures; Zircon (4/mmm); Complete data set; 5823 data points; Equal area projection; Lower hemispheres.

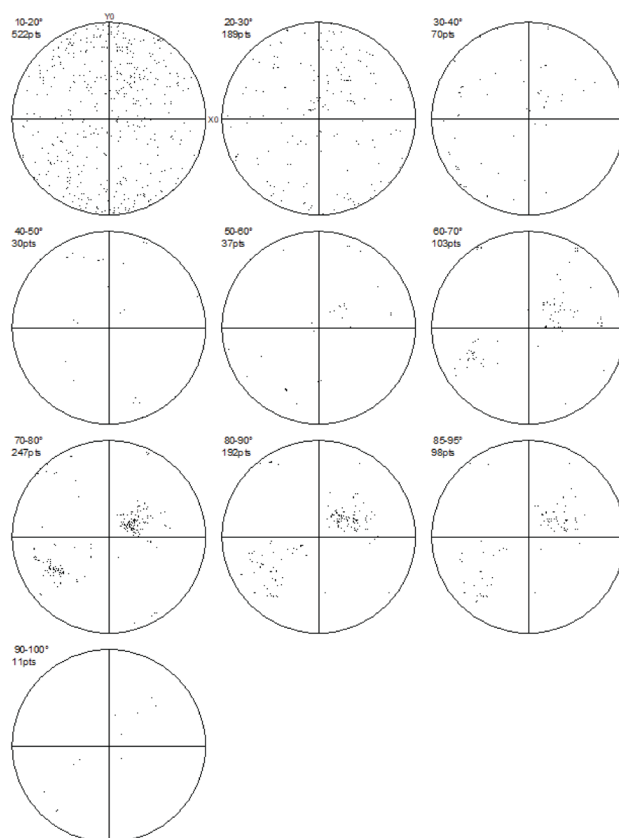


Fig. DR 2.1.42 Rotation axes; Zircon (4/mmm); Complete data set; 1499 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	35.71 %
Speed of Acquisition	6.61 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.35	53	40.91	15.44	17.00	71.00	1.16	0.32	0.66	1.90
Zircon	34.64	5281	63.54	14.30	16.00	111.00	0.82	0.18	0.31	1.97
Zr02 mono-clinic	0.72	109	31.08	14.65	12.00	93.00	1.26	0.31	0.65	2.00
Zero Solutions	64.29	9801	27.05	10.38	0.00	96.00				

Grain 49

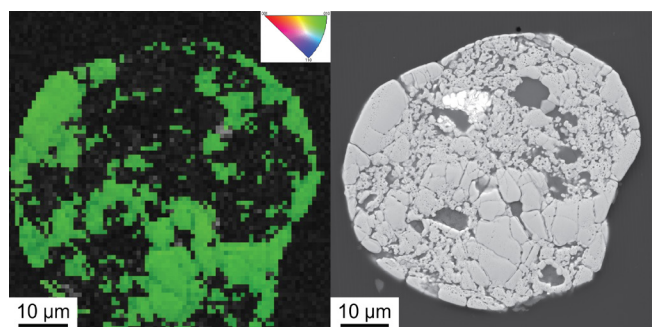


Fig. DR 2.1.43 Left) All phase IPF image of EBSD analyses; Step = 0.841 μm; Grid = 78x78. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 67.6 μm.

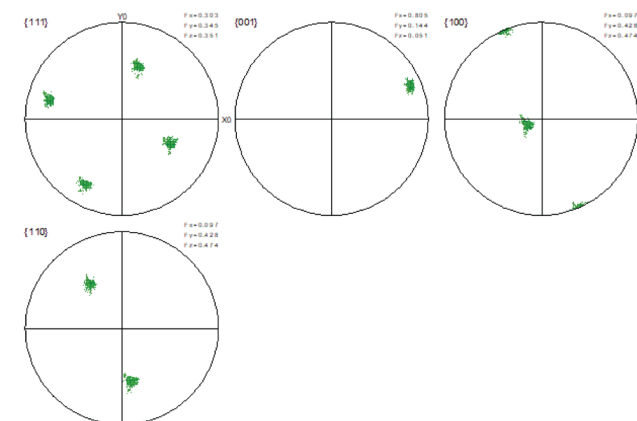


Fig. DR 2.1.44 Pole figures; Zircon (4/mmm); Complete data set; 1827 data points; Equal area projection; Lower hemispheres.

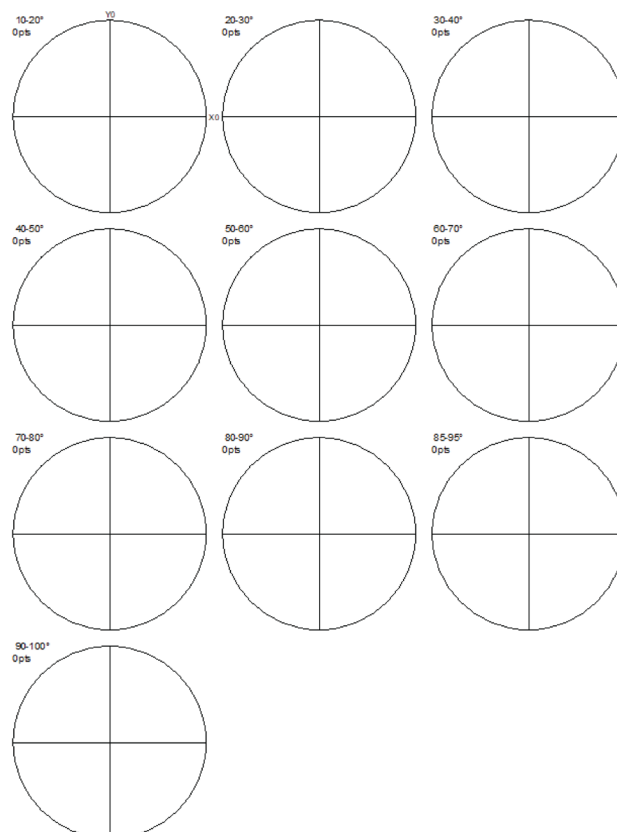


Fig. DR 2.1.45 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	30.95 %
Speed of Acquisition	6.45 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.26	16	37.56	26.24	21.00	134.00	1.19	0.32	0.65	1.86
Zircon	29.78	1812	77.75	22.12	24.00	132.00	0.78	0.19	0.29	1.98
ZrO2 mono-clinic	0.90	55	29.31	8.07	20.00	55.00	1.21	0.29	0.60	1.91
Zero Solutions	69.05	4201	29.60	8.99	0.00	134.00				

Grain 51

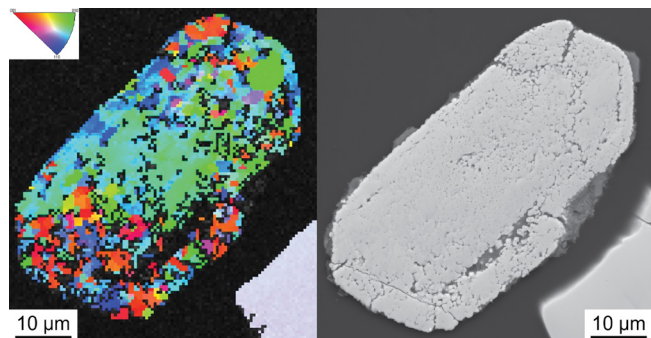


Fig. DR 2.1.46 Left) All phase IPF image of EBSD analyses; Step = 0.504 μm; Grid = 111x121. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 67.6 μm.

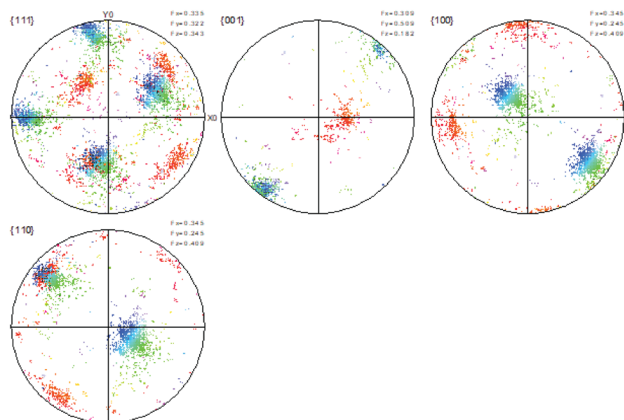


Fig. DR 2.1.47 Pole figures; Zircon (4/mmm); Complete data set; 5600 data points; Equal area projection; Lower hemispheres.

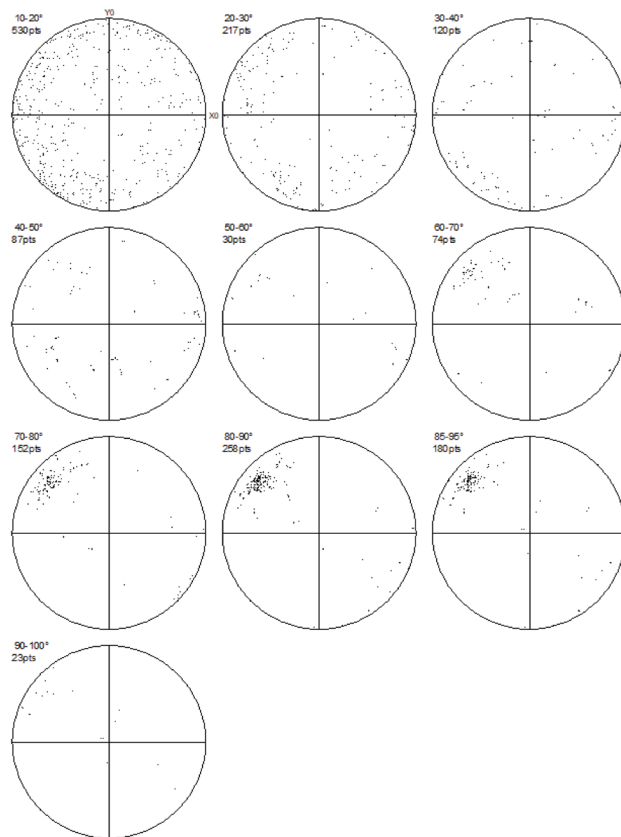


Fig. DR 2.1.48 Rotation axes; Zircon (4/mmm); Complete data set; 1671 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	39.51 %
Speed of Acquisition	6.62 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.34	45	43.51	17.99	13.00	98.00	1.13	0.33	0.47	1.81
Zircon	38.56	5179	67.39	17.13	20.00	126.00	0.79	0.18	0.27	1.98
ZrO2 monoclinic	0.61	82	30.11	11.27	15.00	77.00	1.27	0.25	0.76	1.97
Zero Solutions	60.49	8125	27.87	10.37	0.00	94.00				

DR 2.2 Clast-rich impact melt

Grain 3

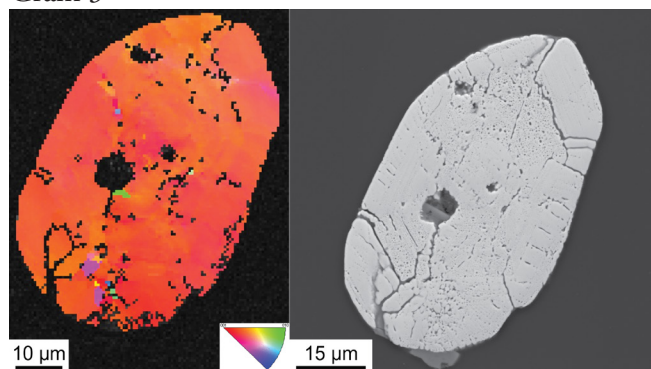


Fig. DR 2.2.1 Left) All phase IPF image of EBSD analyses; Step = 0.542 μm; Grid = 113x147. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.01 mm; View field = 80.0 μm.

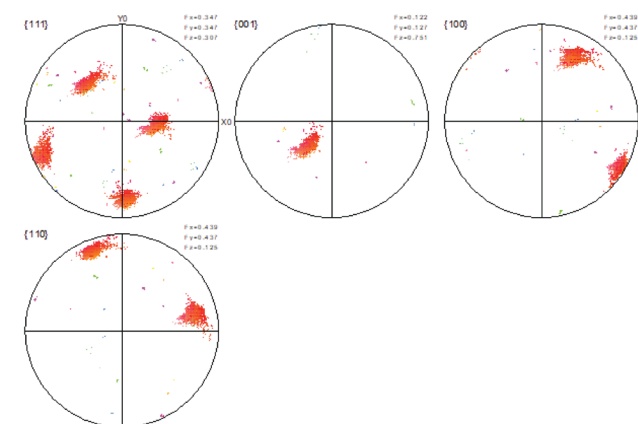


Fig. DR 2.2.2 Pole figures; Zircon (4/mmm); Complete data set; 8347 data points; Equal area projection; Lower hemispheres.

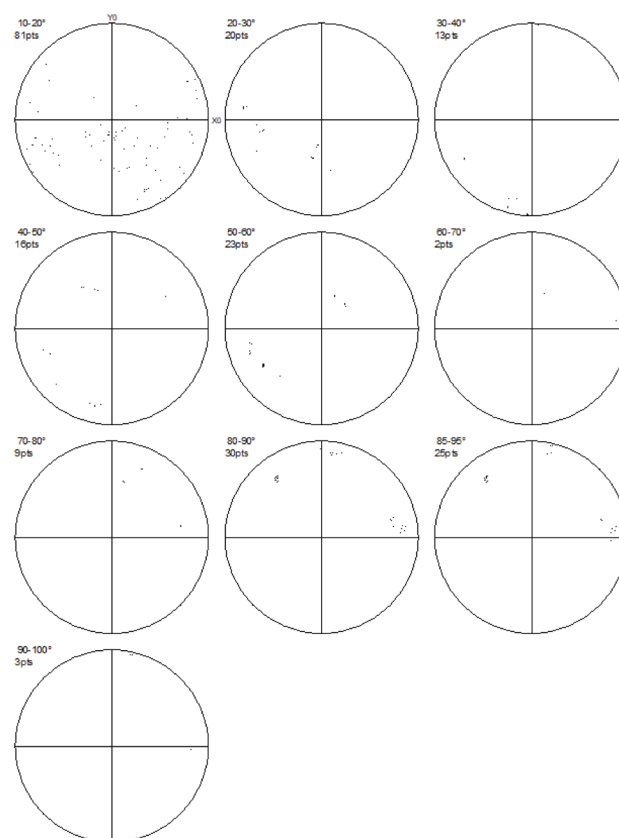


Fig. DR 2.2.3 Rotation axes; Zircon (4/mmm); Complete data set; 222 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	47.66 %									
Speed of Acquisition	6.62 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.20	33	50.27	18.09	19.00	86.00	1.10	0.28	0.57	1.73
Zircon	46.89	7789	71.12	14.48	20.00	110.00	0.77	0.17	0.27	1.96
ZrO2 monoclinic	0.57	95	28.18	9.98	12.00	64.00	1.32	0.29	0.74	2.00
Zero Solutions	52.34	8694	26.22	8.64	0.00	95.00				

Grain 6

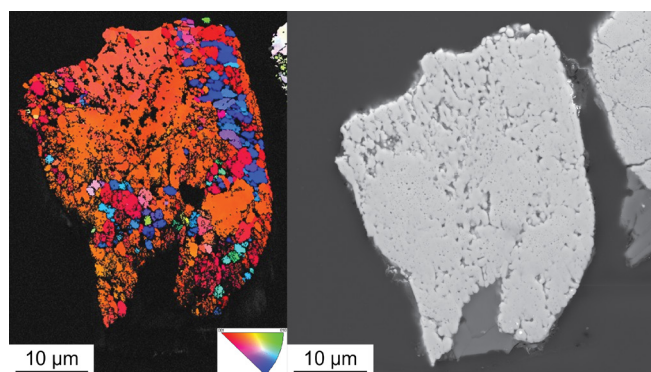


Fig. DR 2.2.4 Left) All phase IPF image of EBSD analyses; Step = 0.096 µm; Grid = 409x557. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 50.9 µm.

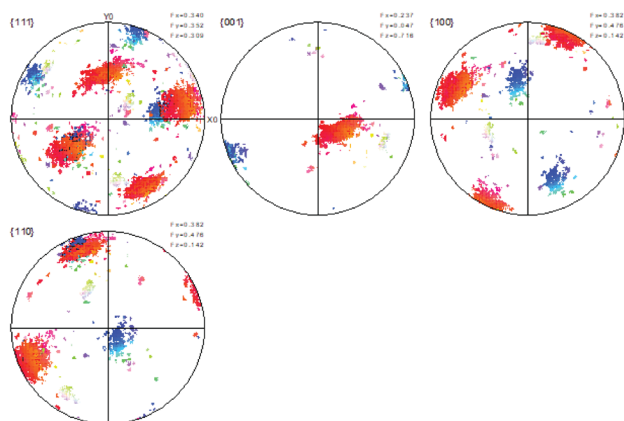


Fig. DR 2.2.5 Pole figures; Zircon (4/mmm); Complete data set; 66628 data points; Equal area projection; Lower hemispheres.

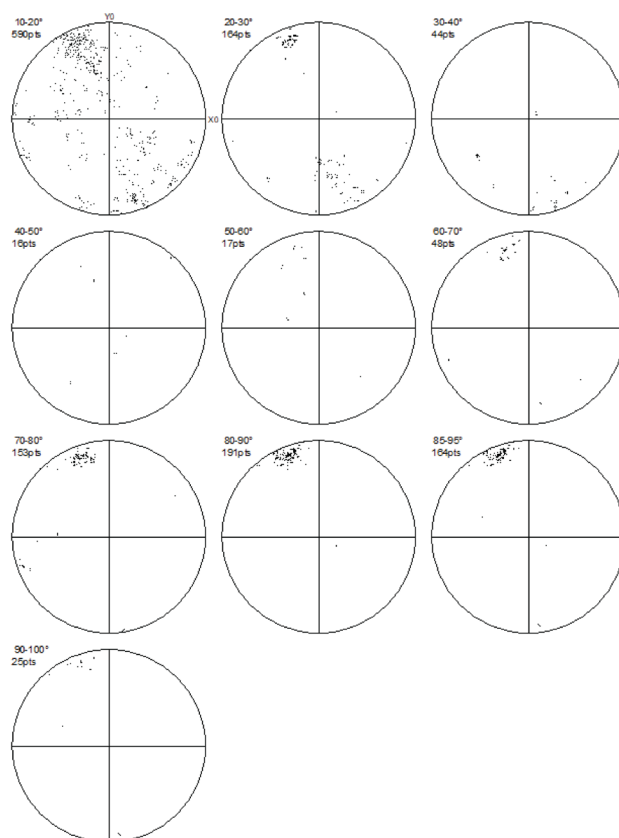


Fig. DR 2.2.6 Rotation axes; Zircon (4/mmm); Complete data set; 1412 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	28.63 %									
Speed of Acquisition	6.72 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.31	713	35.96	12.57	14.00	91.00	1.17	0.30	0.35	1.99
Zircon	27.54	62740	53.24	12.98	12.00	114.00	0.84	0.19	0.16	2.00
ZrO2 mono-clinic	0.78	1766	29.69	9.61	11.00	76.00	1.27	0.30	0.38	2.00
Zero Solutions	71.37	162594	27.55	7.85	0.00	88.00				

Grain 8

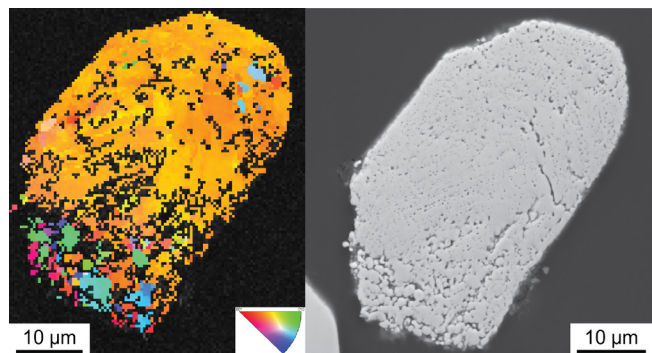


Fig. DR 2.2.7 Left) All phase IPF image of EBSD analyses; Step = 0.391 μm; Grid = 115x136. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 51.6 μm.

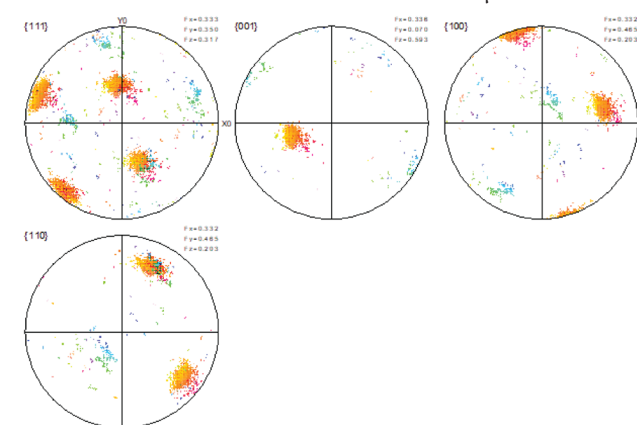


Fig. DR 2.2.8 Pole figures; Zircon (4/mmm); Complete data set; 6023 data points; Equal area projection; Lower hemispheres.

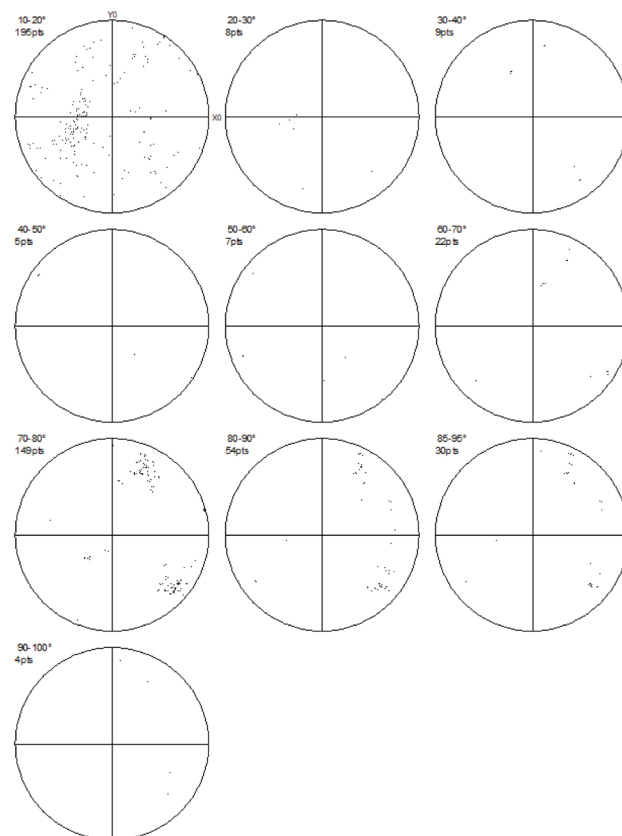


Fig. DR 2.2.9 Rotation axes; Zircon (4/mmm); Complete data set; 483 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	36.18 %
Speed of Acquisition	6.62 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.33	51	41.96	14.18	15.00	75.00	1.07	0.31	0.44	1.88
Zircon	35.17	5500	56.86	12.59	19.00	103.00	0.81	0.19	0.29	1.97
ZrO2 monoclinic	0.69	108	29.47	10.48	16.00	71.00	1.32	0.30	0.59	1.95
Zero Solutions	63.82	9981	27.79	9.24	0.00	85.00				

Grain 10

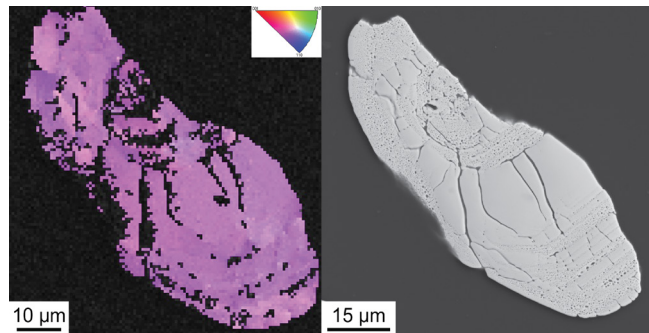


Fig. DR 2.2.10 Left) All phase IPF image of EBSD analyses; Step = 0.62 µm; Grid = 121x115. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.03 mm; View field = 80.7 µm.

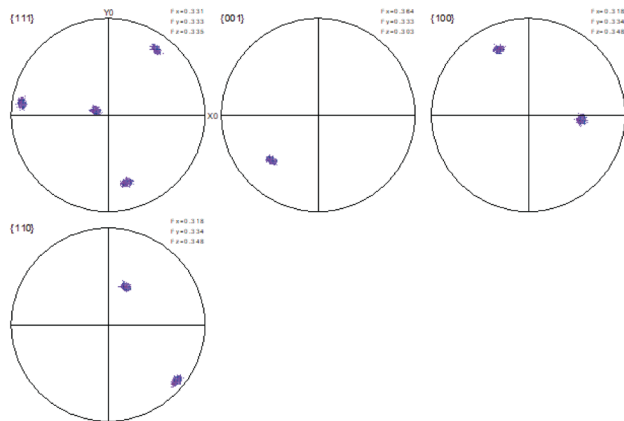


Fig. DR 2.2.11 Pole figures; Zircon (4/mmm); Complete data set; 5006 data points; Equal area projection; Lower hemispheres.

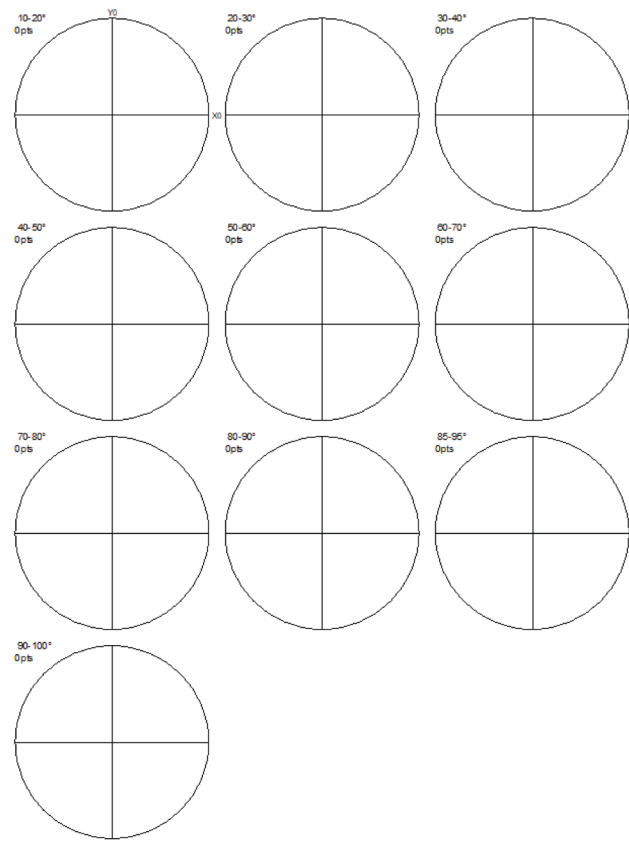


Fig. DR 2.2.12 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	34.98 %
Speed of Acquisition	4.42 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.29	40	36.15	11.75	17.00	65.00	1.25	0.33	0.70	1.97
Zircon	33.90	4717	63.75	15.93	19.00	118.00	0.81	0.21	0.27	1.98
Zr02 mono-clinic	0.79	110	28.69	6.90	17.00	49.00	1.28	0.29	0.62	2.00
Zero Solutions	65.02	9048	27.89	7.27	0.00	95.00				

Grain 12

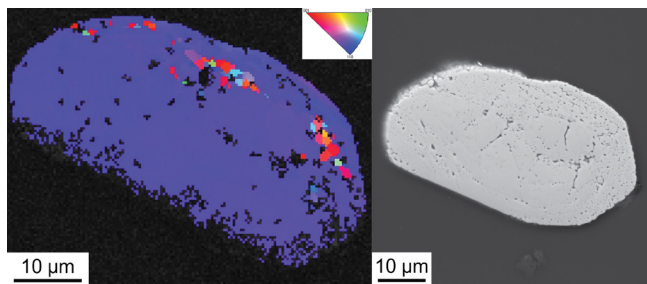


Fig. DR 2.2.13 Left) All phase IPF image of EBSD analyses; Step = 0.355 µm; Grid = 153x117. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 59.7 µm.

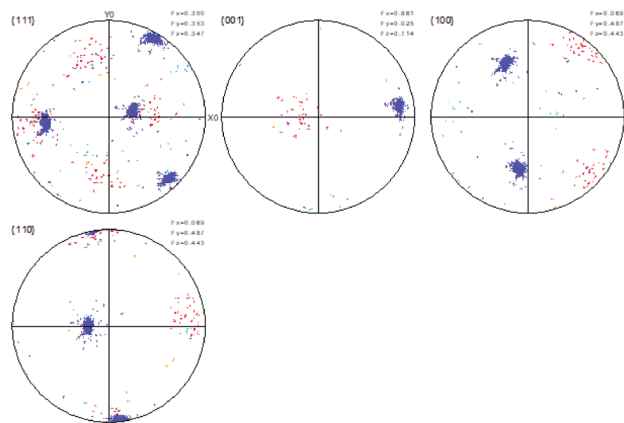


Fig. DR 2.2.14 Pole figures; Zircon (4/mmm); Complete data set; 8331 data points; Equal area projection; Lower hemispheres.

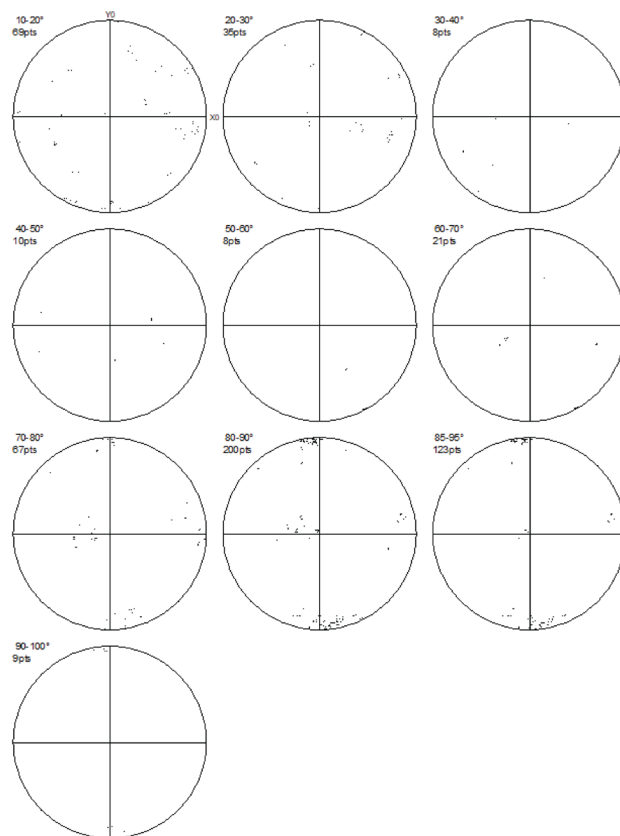


Fig. DR 2.2.15 Rotation axes; Zircon (4/mmm); Complete data set; 550 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	44.57 %									
Speed of Acquisition	6.66 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.15	27	30.41	10.53	13.00	62.00	1.31	0.26	0.94	1.85
Zircon	43.72	7827	59.47	13.37	16.00	105.00	0.75	0.17	0.26	1.95
ZrO2 monoclinic	0.70	125	29.57	10.46	14.00	73.00	1.21	0.32	0.43	1.99
Zero Solutions	55.43	9922	26.42	7.46	0.00	99.00				

Grain 14

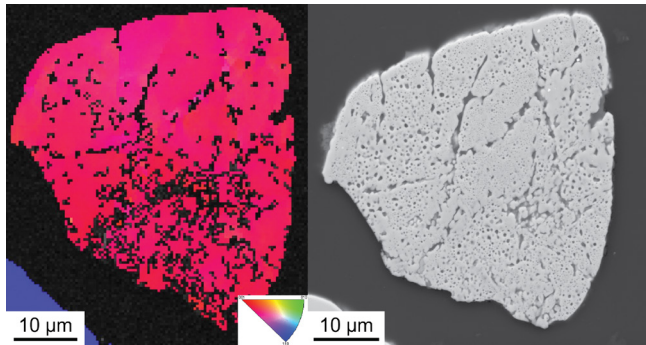


Fig. DR 2.2.16 Left) All phase IPF image of EBSD analyses; Step = 0.402 μm; Grid = 120x135. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 53.3 μm.

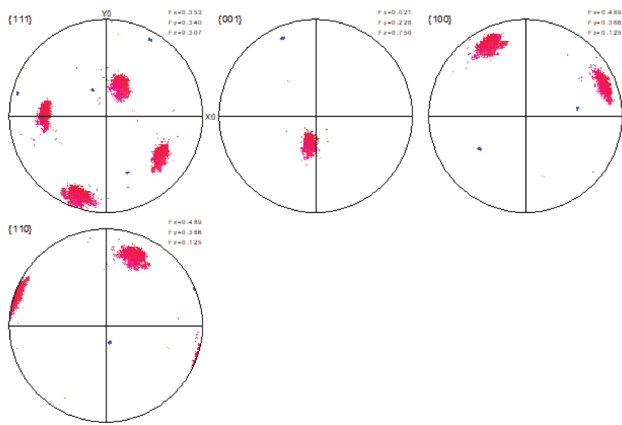


Fig. DR 2.2.17 Pole figures; Zircon (4/mmm); Complete data set; 8555 data points; Equal area projection; Lower hemispheres.

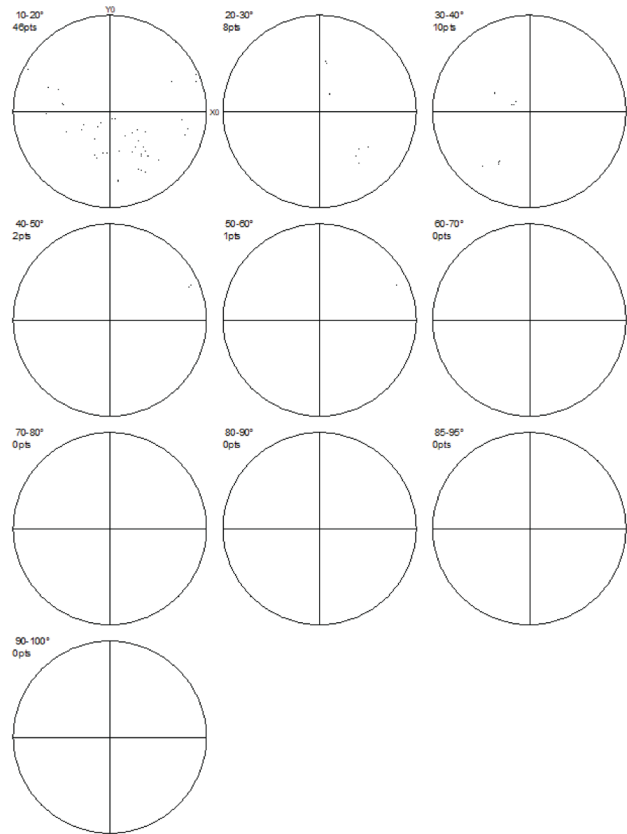


Fig. DR 2.2.18 Rotation axes; Zircon (4/mmm); Complete data set; 67 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	49.53 %
Speed of Acquisition	6.63 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.50	81	47.06	16.09	18.00	87.00	1.01	0.29	0.44	1.76
Zircon	48.48	7853	63.03	15.67	19.00	121.00	0.81	0.19	0.22	1.98
ZrO2 monoclinic	0.56	90	30.03	11.32	14.00	70.00	1.29	0.29	0.71	1.93
Zero Solutions	50.47	8176	27.81	10.15	0.00	98.00				

Grain 17

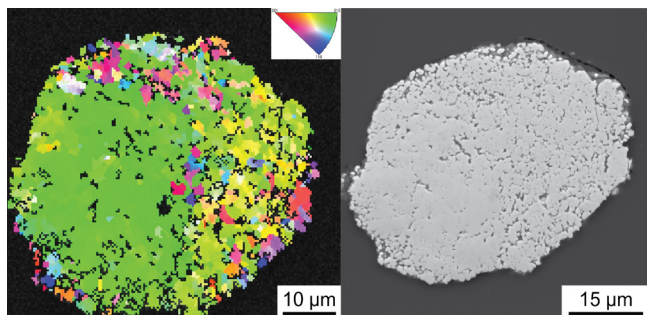


Fig. DR 2.2.19 Left) All phase IPF image of EBSD analyses; Step = 0.367 μm; Grid = 172x161. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.08 mm; View field = 65.1 μm.

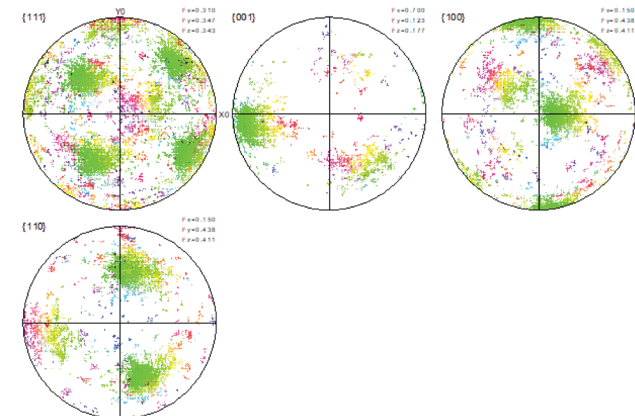


Fig. DR 2.2.20 Pole figures; Zircon (4/mmm); Complete data set; 14772 data points; Equal area projection; Lower hemispheres.

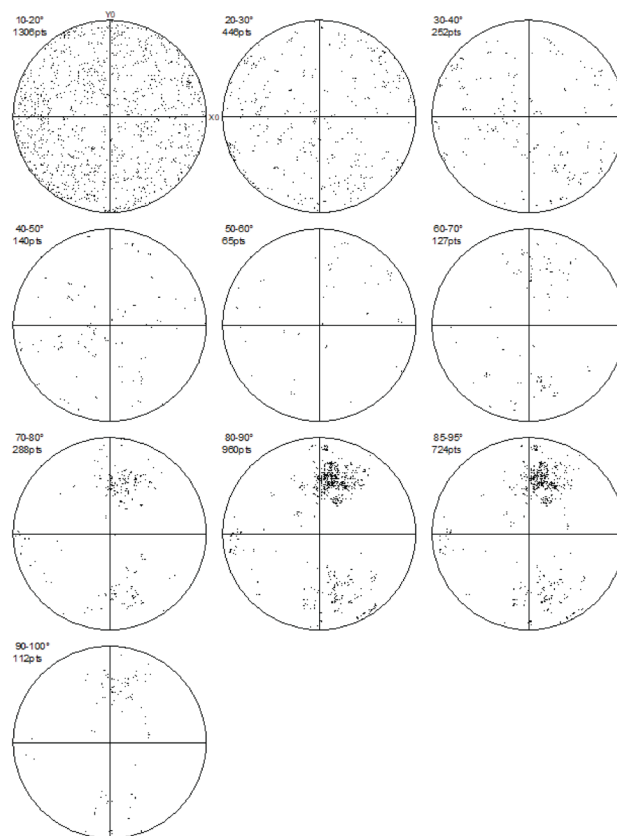


Fig. DR 2.2.21 Rotation axes; Zircon (4/mmm); Complete data set; 4420 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	49.46 %
Speed of Acquisition	4.45 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.22	62	41.40	17.10	16.00	86.00	1.14	0.28	0.48	1.72
Zircon	48.70	13487	69.71	15.81	13.00	117.00	0.77	0.18	0.26	2.00
ZrO2 monoclinic	0.53	147	30.86	11.83	16.00	88.00	1.27	0.31	0.61	1.99
Zero Solutions	50.54	13996	28.81	9.73	0.00	93.00				

Grain 19

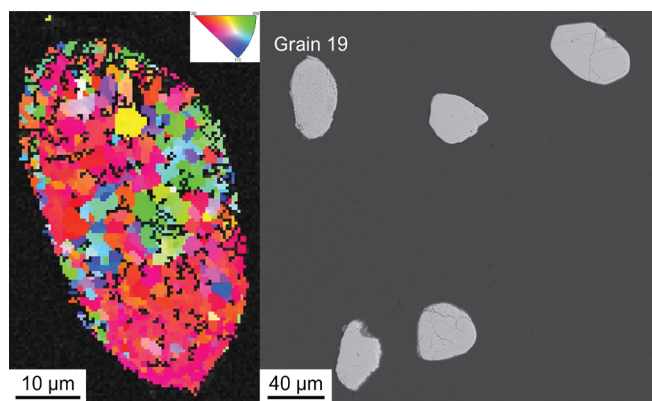


Fig. DR 2.2.22 Left) All phase IPF image of EBSD analyses; Step = 0.452 μm; Grid = 89x138. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.94 mm; View field = 285.0 μm.

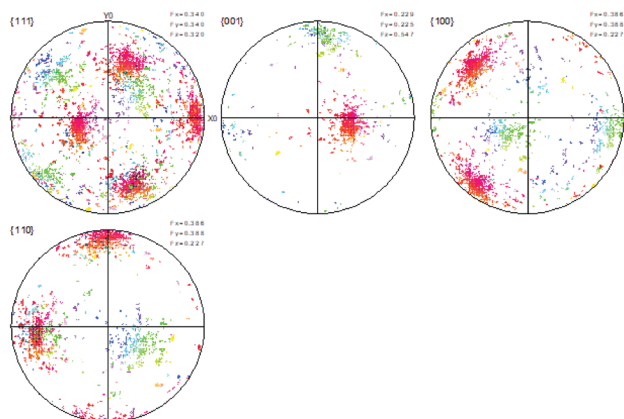


Fig. DR 2.2.23 Pole figures; Zircon (4/mmm); Complete data set; 5584 data points; Equal area projection; Lower hemispheres.

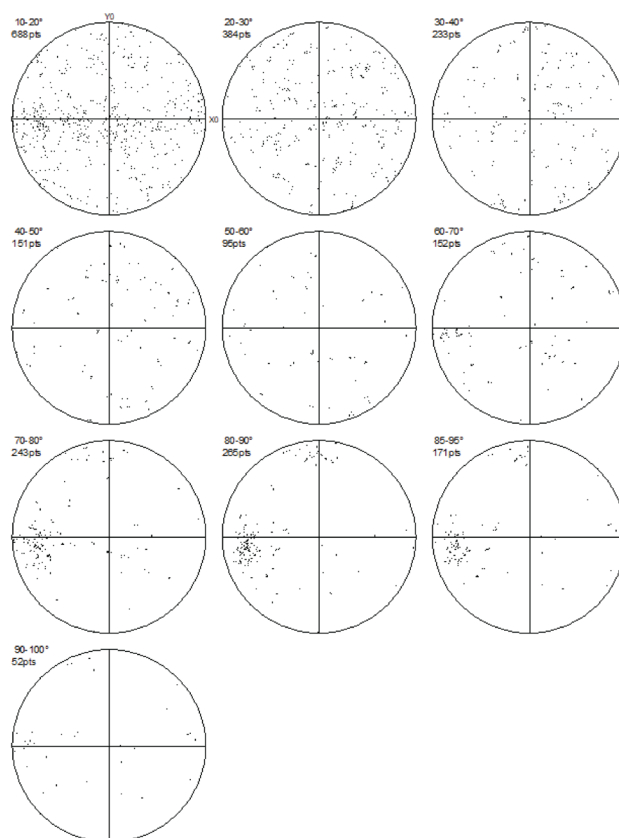


Fig. DR 2.2.24 Rotation axes; Zircon (4/mmm); Complete data set; 2434 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	40.94 %
Speed of Acquisition	6.58 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.24	29	40.69	16.20	17.00	75.00	1.11	0.40	0.47	1.96
Zircon	40.07	4922	58.40	12.19	21.00	102.00	0.76	0.17	0.29	1.76
Zr02 mono-clinic	0.63	77	30.16	10.12	16.00	59.00	1.27	0.31	0.62	1.95
Zero Solutions	59.06	7254	26.73	7.68	0.00	79.00				

Grain 20

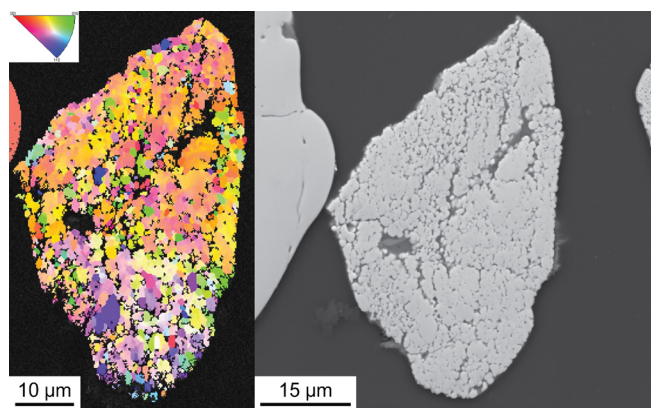


Fig. DR 2.2.25 Left) All phase IPF image of EBSD analyses; Step = 0.199 μm; Grid = 214x345. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 67.3 μm.

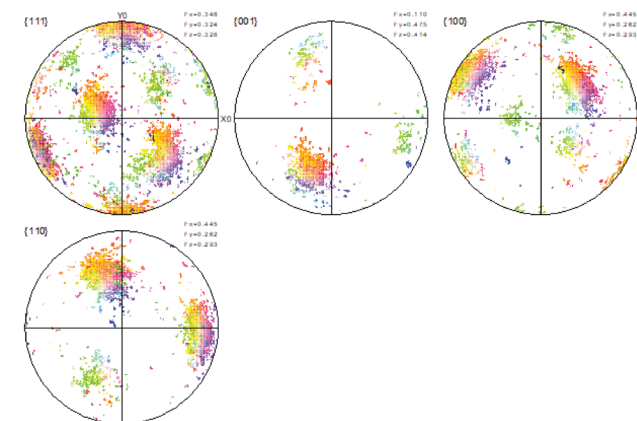


Fig. DR 2.2.26 Pole figures; Zircon (4/mmm); Complete data set; 34515 data points; Equal area projection; Lower hemispheres.

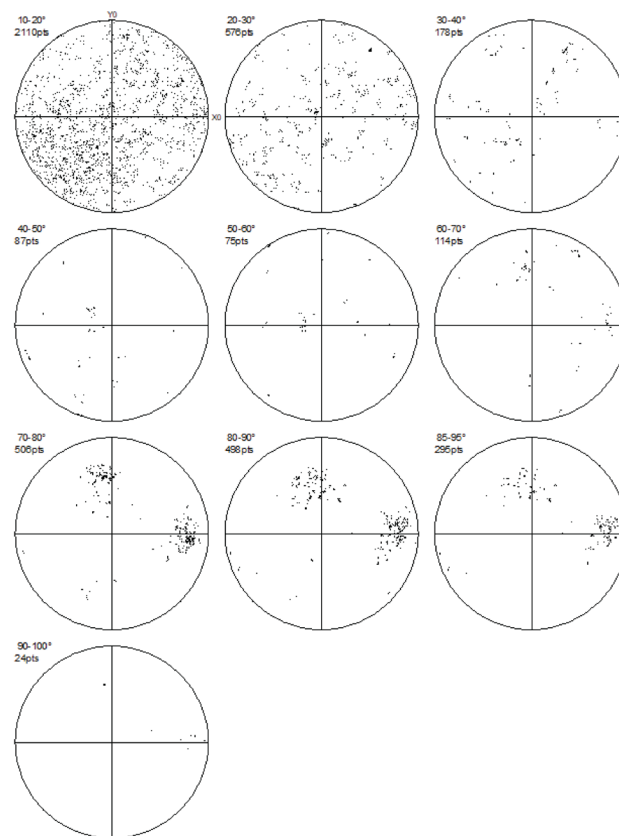


Fig. DR 2.2.27 Rotation axes; Zircon (4/mmm); Complete data set; 4463 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	44.06 %									
Speed of Acquisition	4.46 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.33	241	44.45	18.67	14.00	96.00	1.17	0.29	0.65	2.00
Zircon	43.15	31860	68.57	14.99	14.00	122.00	0.79	0.18	0.20	1.99
ZrO2 monoclinic	0.58	425	30.32	10.92	12.00	73.00	1.30	0.31	0.55	1.97
Zero Solutions	55.94	41304	28.47	10.02	0.00	105.00				

Grain 29

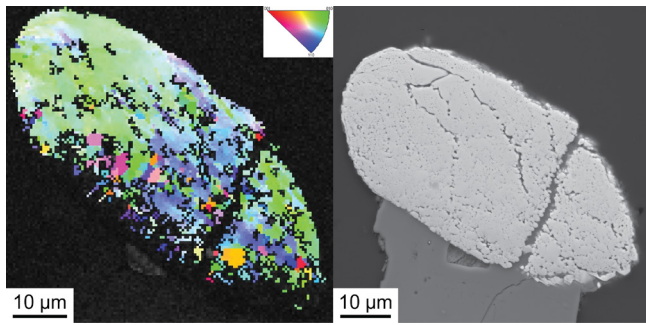


Fig. DR 2.2.28 Left) All phase IPF image of EBSD analyses; Step = 0.451 µm; Grid = 137x132. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 64.9 µm.

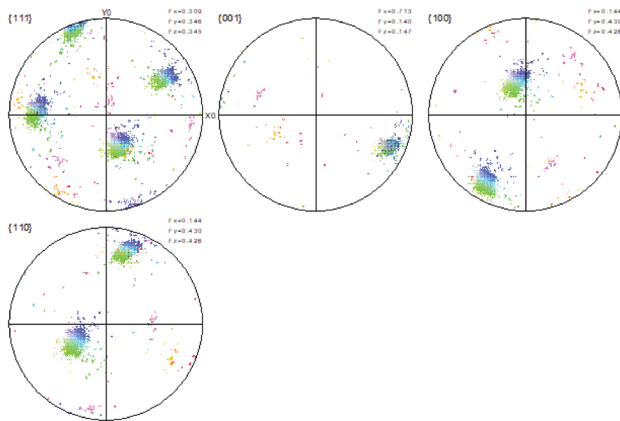


Fig. DR 2.2.29 Pole figures; Zircon (4/mmm); Complete data set; 5872 data points; Equal area projection; Lower hemispheres.

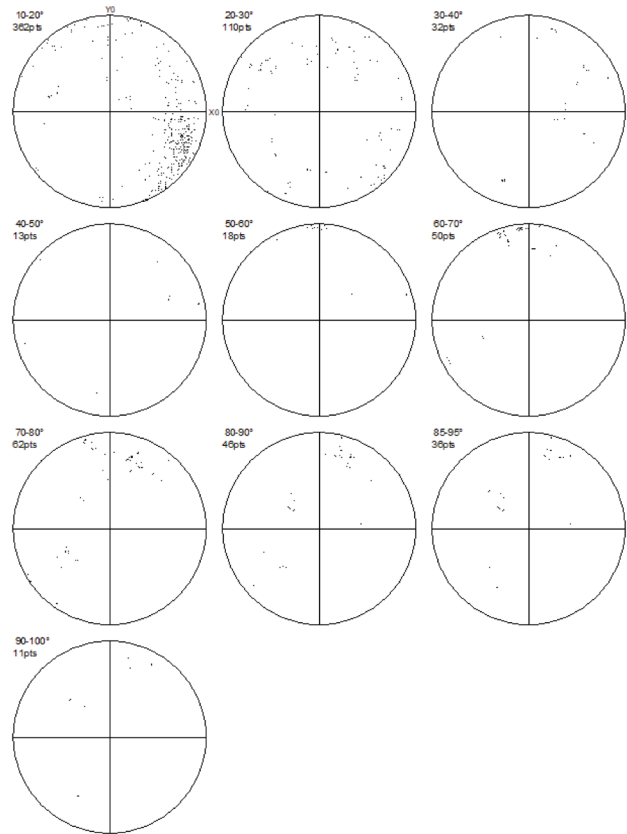


Fig. DR 2.2.30 Rotation axes; Zircon (4/mmm); Complete data set; 740 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	30.80 %									
Speed of Acquisition	6.65 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.23	42	34.40	12.26	19.00	66.00	1.20	0.27	0.62	1.84
Zircon	29.79	5387	57.09	14.18	18.00	106.00	0.79	0.18	0.31	1.88
ZrO2 mono-clinic	0.78	141	28.70	10.31	14.00	77.00	1.29	0.27	0.81	1.98
Zero Solutions	69.20	12514	27.74	7.89	0.00	90.00				

Grain 30

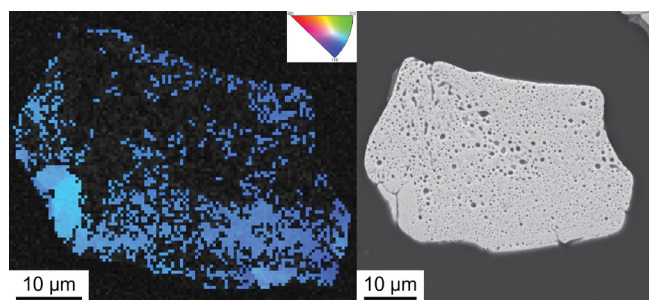


Fig. DR 2.2.31 Left) All phase IPF image of EBSD analyses; Step = 0.453 µm; Grid = 118x99. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 57.2 µm.

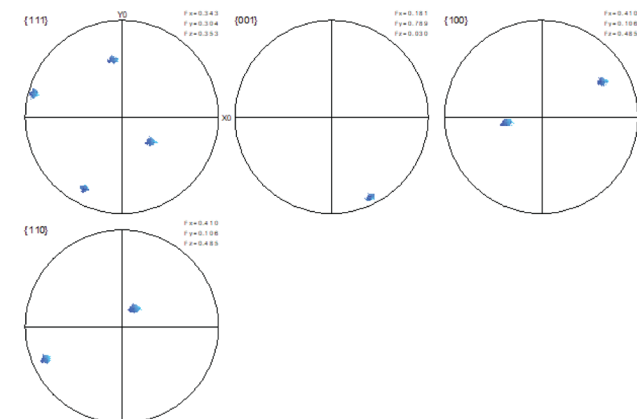


Fig. DR 2.2.32 Pole figures; Zircon (4/mmm); Complete data set; 2051 data points; Equal area projection; Lower hemispheres.

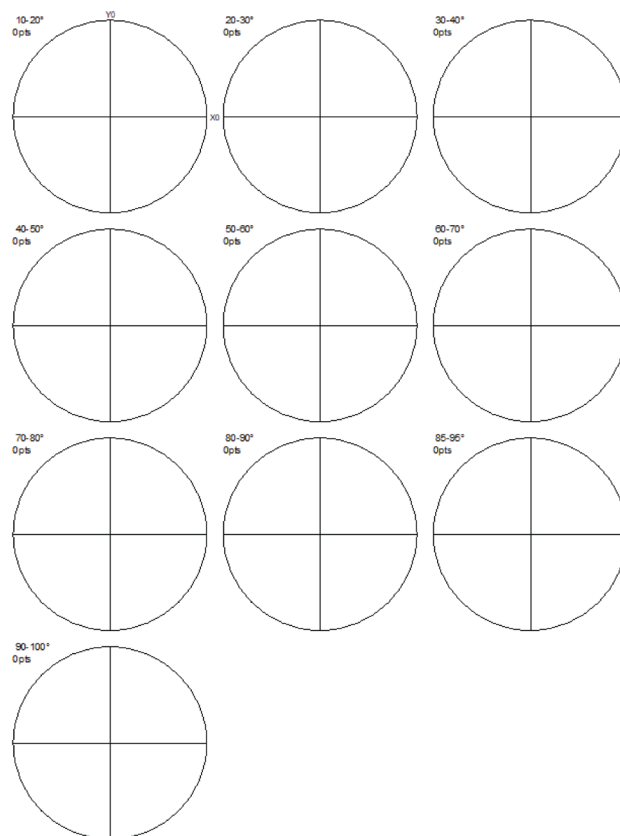


Fig. DR 2.2.33 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	19.00 %
Speed of Acquisition	6.63 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.38	44	35.77	11.51	19.00	84.00	1.17	0.27	0.66	1.79
Zircon	17.69	2067	46.03	9.81	19.00	85.00	0.88	0.20	0.33	1.98
ZrO2 monoclinic	0.92	108	29.05	8.07	14.00	47.00	1.25	0.28	0.67	1.98
Zero Solutions	81.00	9463	28.08	7.59	0.00	65.00				

Grain 33

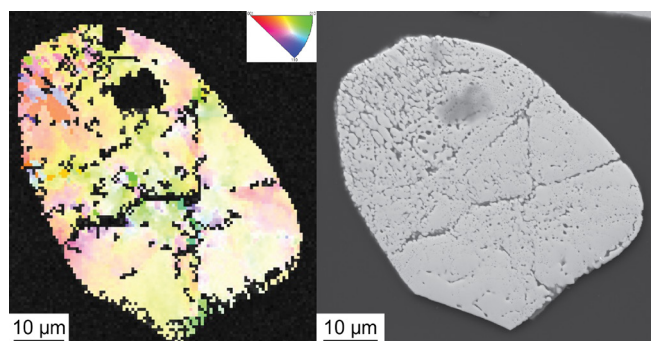


Fig. DR 2.2.34 Left) All phase IPF image of EBSD analyses; Step = 0.574 µm; Grid = 108x119. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 63.6 µm.

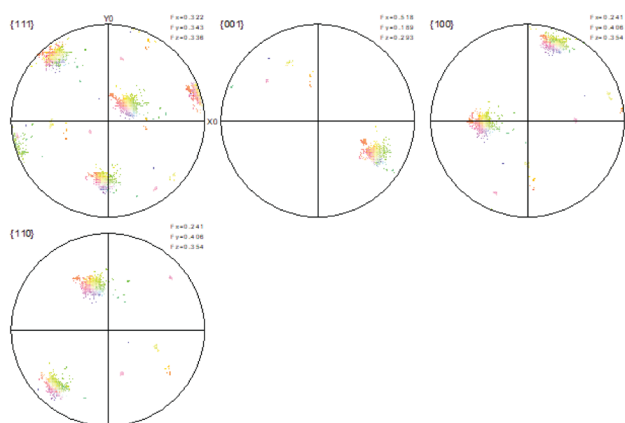


Fig. DR 2.2.35 Pole figures; Zircon (4/mmm); Complete data set; 6003 data points; Equal area projection; Lower hemispheres.

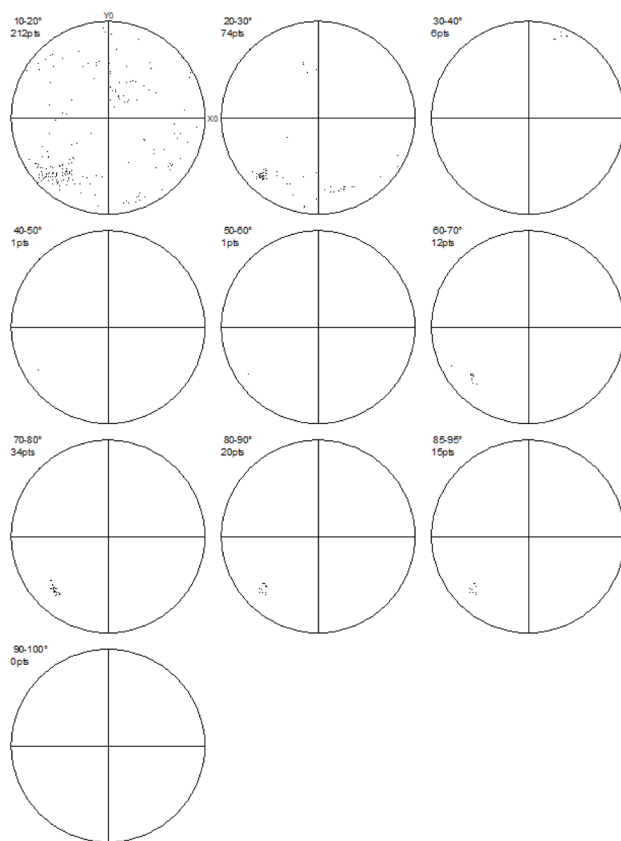


Fig. DR 2.2.36 Rotation axes; Zircon (4/mmm); Complete data set; 375 data points; Equal area projection; Lower hemispheres.

Settings

Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	43.51 %
Speed of Acquisition	6.62 Hz

Phases for acquisition

Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction

Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.30	38	43.16	17.78	16.00	82.00	1.07	0.32	0.55	1.79
Zircon	42.77	5497	60.35	11.77	22.00	101.00	0.81	0.17	0.33	1.98
Zr02 mono-clinic	0.44	57	27.56	7.53	15.00	51.00	1.29	0.35	0.66	1.97
Zero Solutions	56.49	7260	26.97	9.25	0.00	103.00				

Grain 34

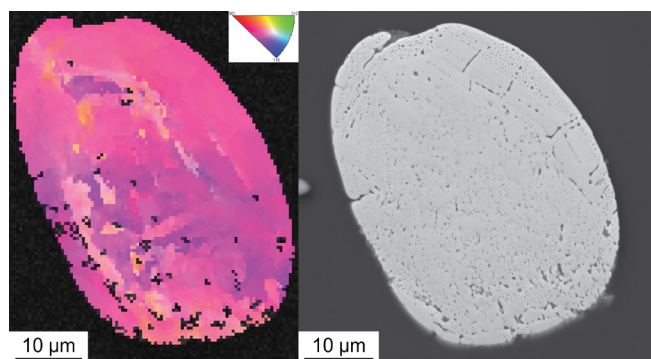


Fig. DR 2.2.37 Left) All phase IPF image of EBSD analyses; Step = 0.448 µm; Grid = 98x120. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 52.3 µm.

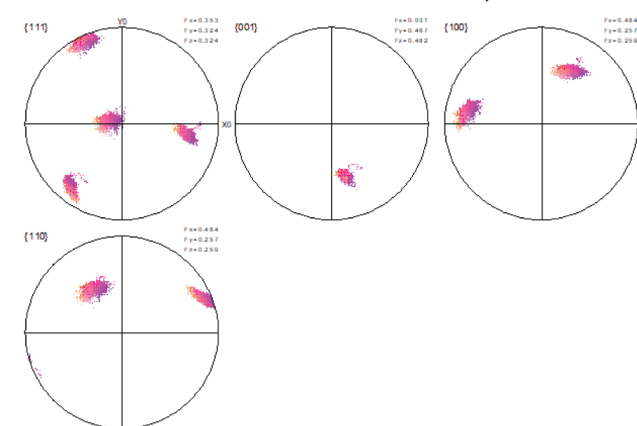


Fig. DR 2.2.38 Pole figures; Zircon (4/mmm); Complete data set; 7236 data points; Equal area projection; Lower hemispheres.

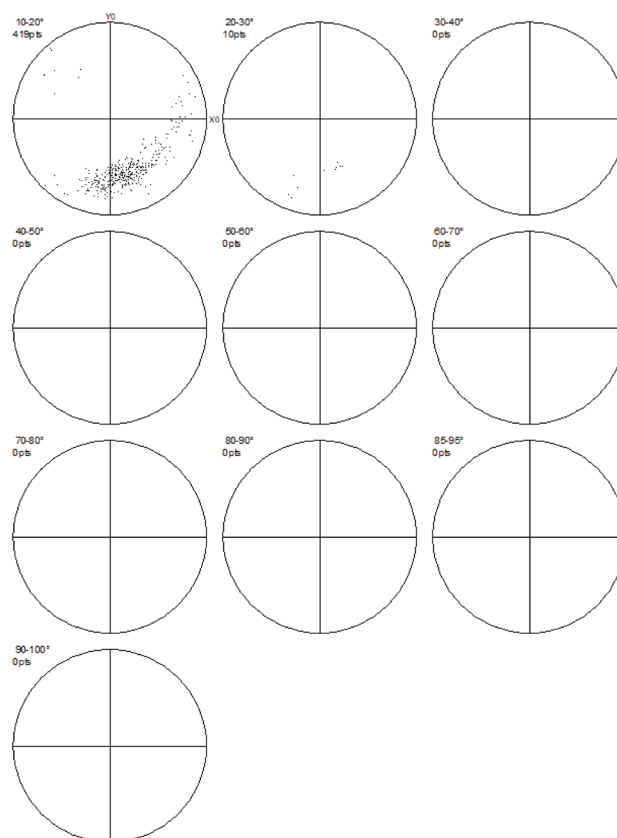


Fig. DR 2.2.39 Rotation axes; Zircon (4/mmm); Complete data set; 429 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	58.10 %
Speed of Acquisition	4.40 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.40	47	47.02	18.39	13.00	84.00	1.06	0.28	0.59	1.98
Zircon	57.30	6739	78.04	16.01	21.00	123.00	0.75	0.19	0.28	2.00
ZrO2 monoclinic	0.39	46	28.87	11.42	15.00	73.00	1.34	0.30	0.66	1.87
Zero Solutions	41.90	4928	28.40	10.24	0.00	96.00				

Grain 38

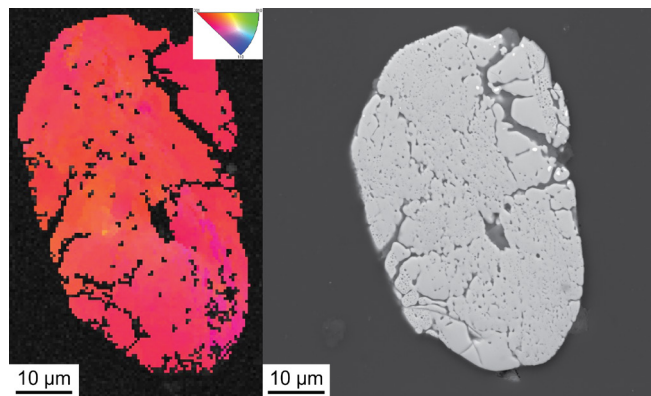


Fig. DR 2.2.40 Left) All phase IPF image of EBSD analyses; Step = 0.476 µm; Grid = 95x147. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 70.0 µm.

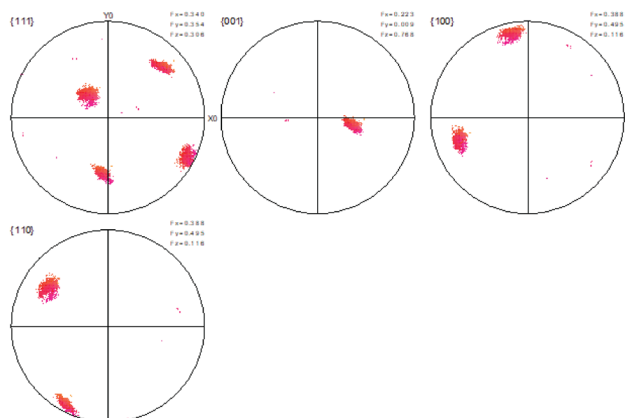


Fig. DR 2.2.41 Pole figures; Zircon (4/mmm); Complete data set; 7359 data points; Equal area projection; Lower hemispheres.

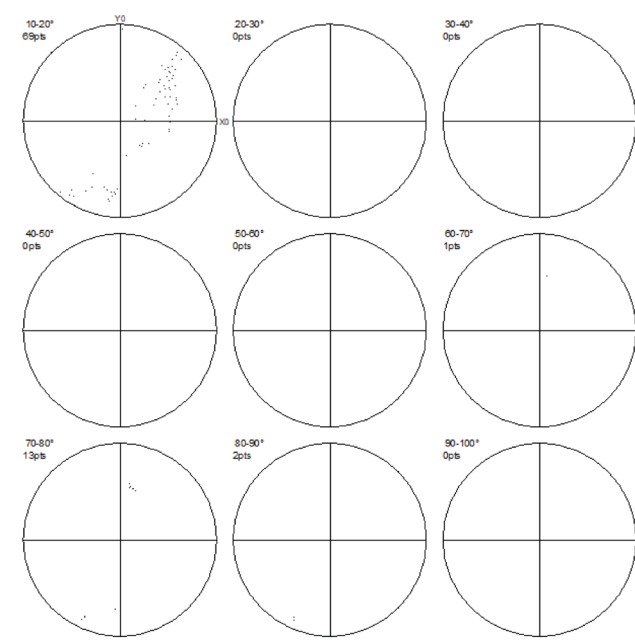


Fig. DR 2.2.42 Rotation axes; Zircon (4/mmm); Complete data set; 85 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	49.31 %
Speed of Acquisition	6.60 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.20	28	42.21	16.60	17.00	80.00	1.12	0.27	0.63	1.82
Zircon	48.54	6779	63.03	13.58	19.00	108.00	0.77	0.17	0.32	1.94
ZrO2 monoclinic	0.57	79	32.32	12.53	15.00	66.00	1.28	0.31	0.63	1.97
Zero Solutions	50.69	7079	26.94	8.04	0.00	86.00				

Grain 43

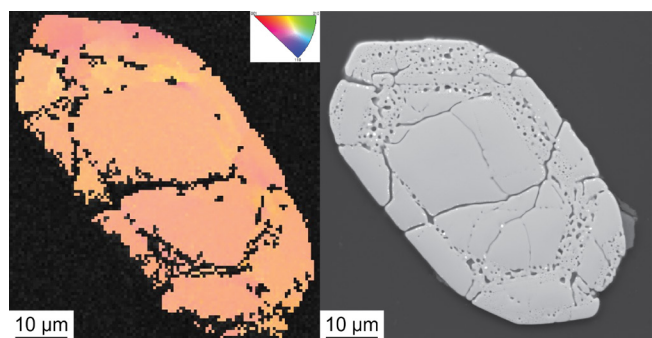


Fig. DR 2.2.43 Left) All phase IPF image of EBSD analyses; Step = 0.562 μm; Grid = 95x147. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 66.0 μm.

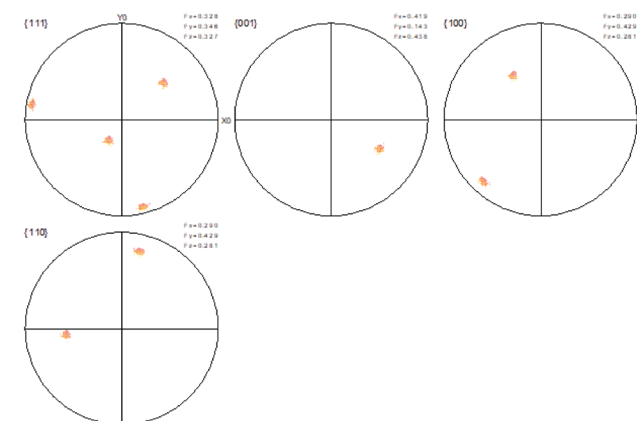


Fig. DR 2.2.44 Pole figures; Zircon (4/mmm); Complete data set; 5745 data points; Equal area projection; Lower hemispheres.

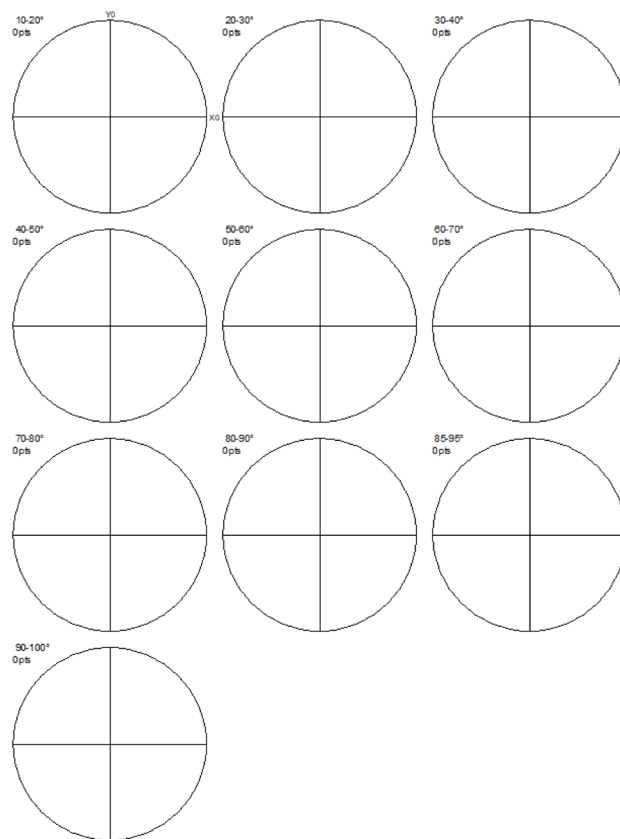


Fig. DR 2.2.45 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	43.36 %
Speed of Acquisition	4.41 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.23	30	33.23	11.96	19.00	60.00	1.33	0.29	0.90	1.94
Zircon	42.50	5462	66.79	17.30	18.00	120.00	0.74	0.17	0.22	1.78
ZrO2 monoclinic	0.62	80	27.28	7.82	16.00	57.00	1.31	0.30	0.52	1.99
Zero Solutions	56.64	7280	26.94	7.11	0.00	105.00				

Grain 44

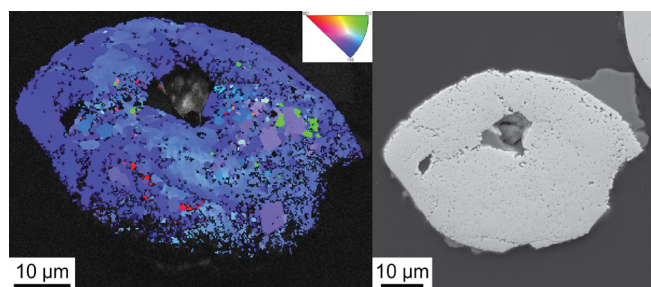


Fig. DR 2.2.46 Left) All phase IPF image of EBSD analyses; Step = 0.19 μm; Grid = 341x266. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 66.0 μm.

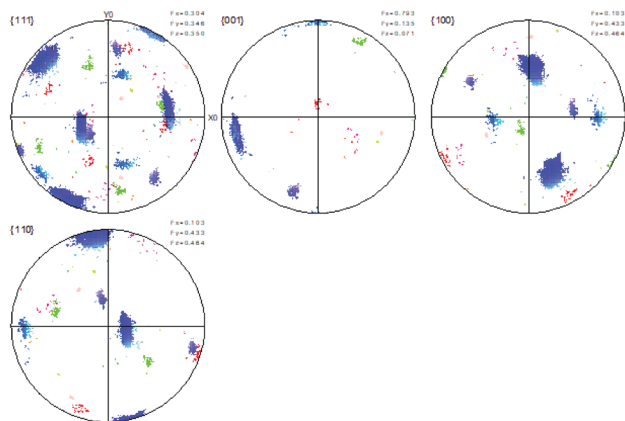


Fig. DR 2.2.47 Pole figures; Zircon (4/mmm); Complete data set; 36746 data points; Equal area projection; Lower hemispheres.

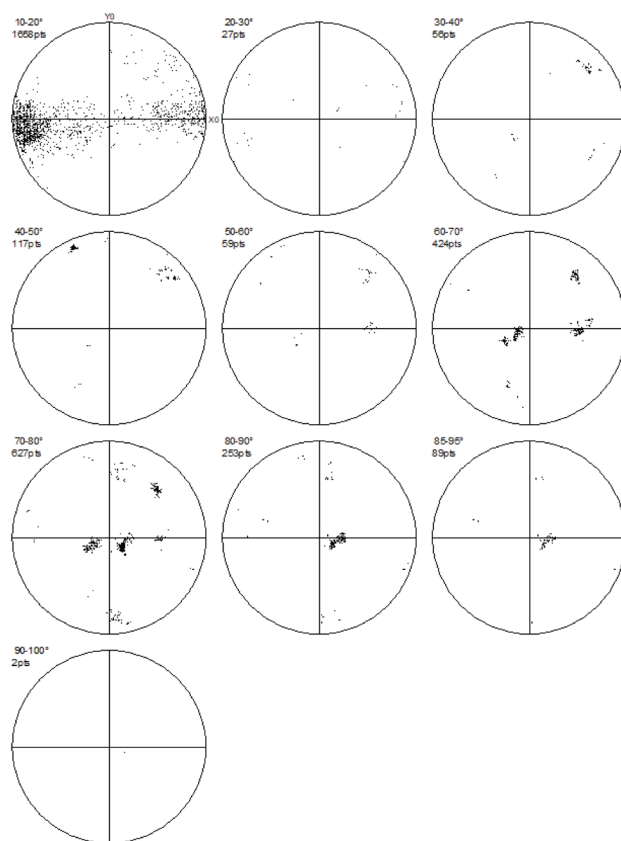


Fig. DR 2.2.48 Rotation axes; Zircon (4/mmm); Complete data set; 3312 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	38.60 %									
Speed of Acquisition	6.71 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.25	226	35.62	15.76	17.00	121.00	1.19	0.28	0.62	1.96
Zircon	37.72	34216	59.04	14.04	13.00	134.00	0.74	0.18	0.19	2.00
Zr02 mono-clinic	0.63	575	29.72	11.77	10.00	101.00	1.26	0.29	0.53	1.97
Zero Solutions	61.40	55689	28.48	10.35	0.00	180.00				

Grain 45

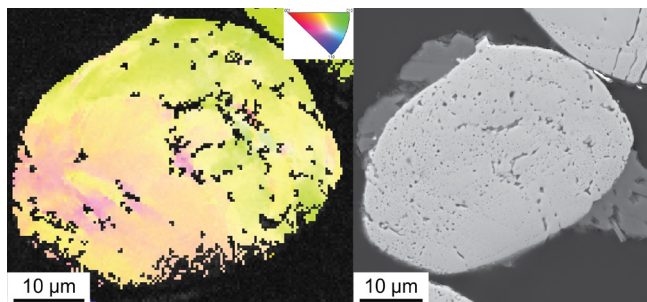


Fig. DR 2.2.49 Left) All phase IPF image of EBSD analyses; Step = 0.344 µm; Grid = 143x124. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 52.2 µm.

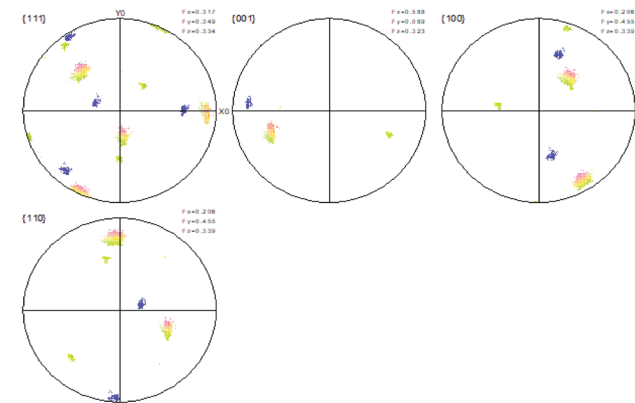


Fig. DR 2.2.50 Pole figures; Zircon (4/mmm); Complete data set; 10708 data points; Equal area projection; Lower hemispheres.

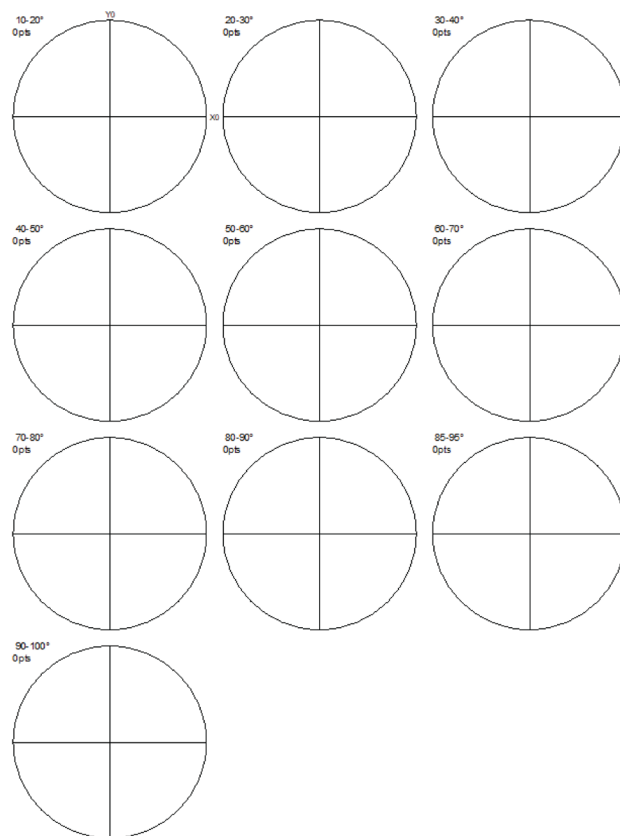


Fig. DR 2.2.51 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	57.44 %
Speed of Acquisition	6.65 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.23	41	38.80	14.65	15.00	69.00	1.13	0.28	0.59	1.92
Zircon	56.78	10069	62.44	13.90	19.00	110.00	0.76	0.17	0.30	1.96
ZrO2 monoclinic	0.43	76	31.42	10.72	15.00	72.00	1.29	0.29	0.67	1.95
Zero Solutions	42.56	7546	28.39	9.59	0.00	80.00				

Grain 46

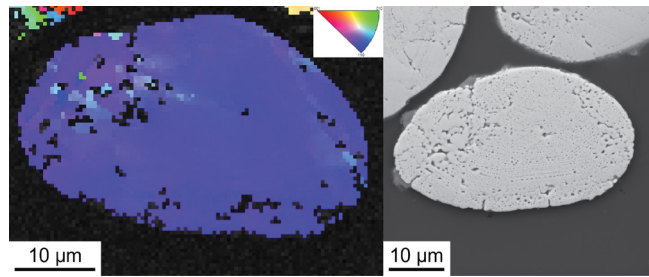


Fig. DR 2.2.52 Left) All phase IPF image of EBSD analyses; Step = 0.447 μm ; Grid = 105x76. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.04 mm; View field = 49.7 μm .

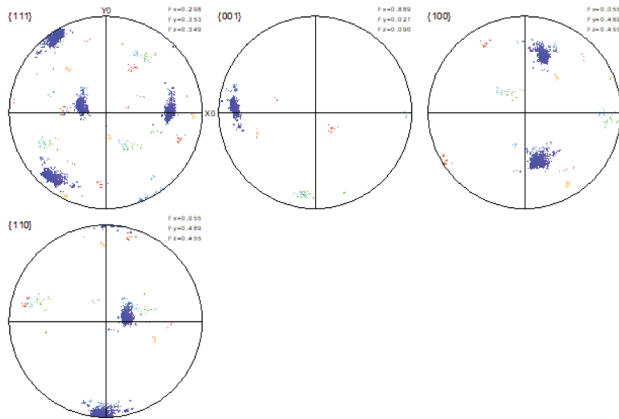


Fig. DR 2.2.53 Pole figures; Zircon (4/mmm); Complete data set; 4391 data points; Equal area projection; Lower hemispheres.

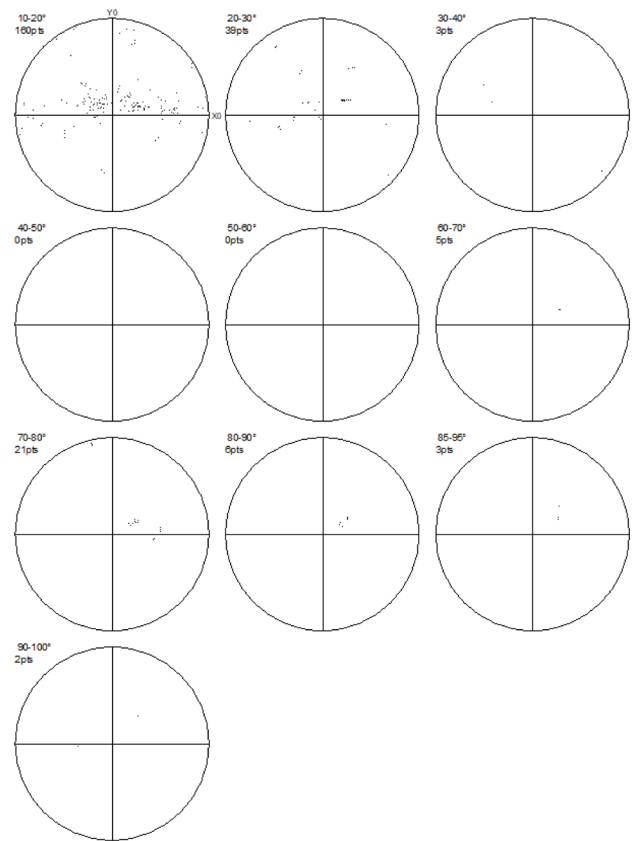


Fig. DR 2.2.54 Rotation axes; Zircon (4/mmm); Complete data set; 239 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	52.44 %									
Speed of Acquisition	4.41 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.16	13	35.77	12.10	21.00	60.00	1.16	0.24	0.73	1.69
Zircon	51.87	4139	70.57	15.21	23.00	120.00	0.70	0.18	0.23	1.99
ZrO2 mono-clinic	0.41	33	25.79	6.30	15.00	40.00	1.30	0.33	0.79	1.93
Zero Solutions	47.56	3795	27.32	8.79	0.00	90.00				

Grain 52

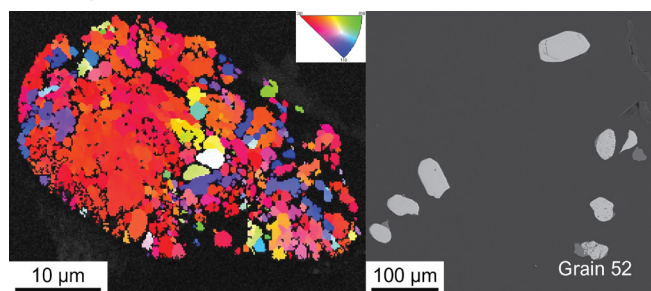


Fig. DR 2.2.55 Left) All phase IPF image of EBSD analyses; Step = 0.167 µm; Grid = 253x203. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.94 mm; View field = 435.0 µm.

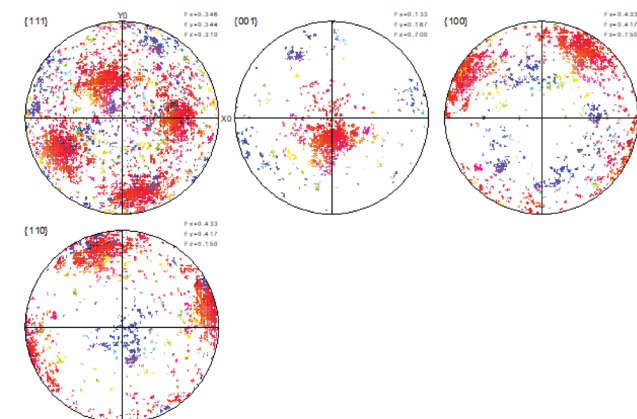


Fig. DR 2.2.56 Pole figures; Zircon (4/mmm); Complete data set; 19946 data points; Equal area projection; Lower hemispheres.

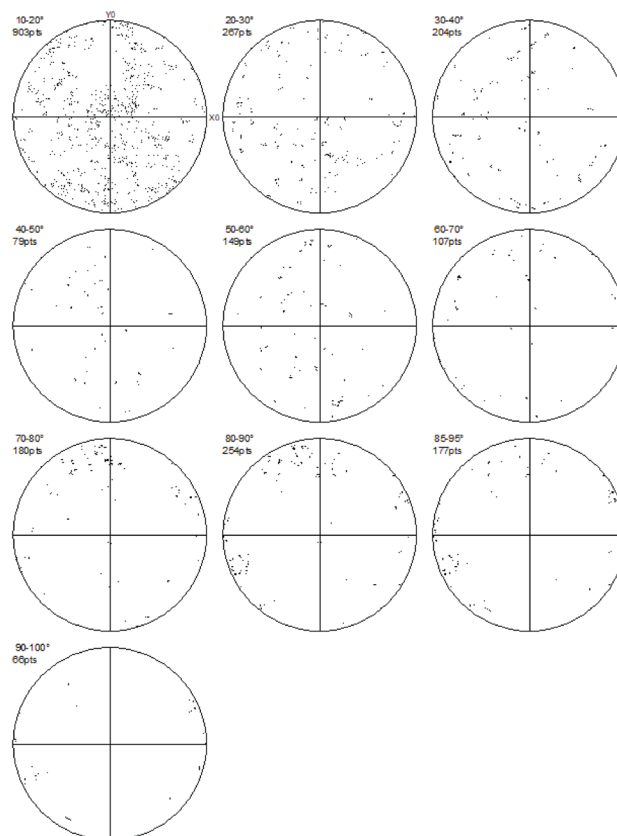


Fig. DR 2.2.57 Rotation axes; Zircon (4/mmm); Complete data set; 2386 data points; Equal area projection; Lower hemispheres.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	37.37 %
Speed of Acquisition	4.47 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.24	121	40.23	17.28	15.00	86.00	1.18	0.31	0.51	1.83
Zircon	36.46	18727	65.73	15.67	17.00	116.00	0.75	0.18	0.25	1.93
ZrO2 mono-clinic	0.67	344	30.55	11.34	14.00	82.00	1.27	0.32	0.48	1.99
Zero Solutions	62.63	32167	28.18	8.82	0.00	109.00				

DR 2.3 Suevitic breccia

Grain 1

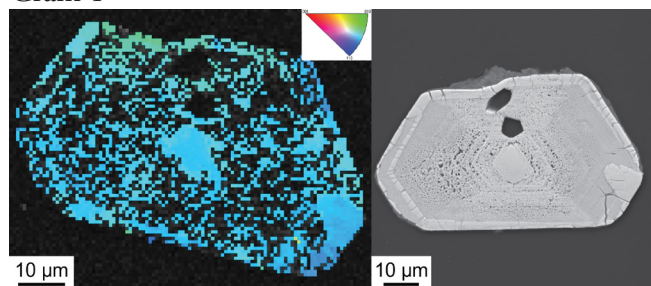


Fig. DR 2.3.1 Left) All phase IPF image of EBSD analyses; Step = 0.7 µm; Grid = 112x88. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.01 mm; View field = 81.7 µm.

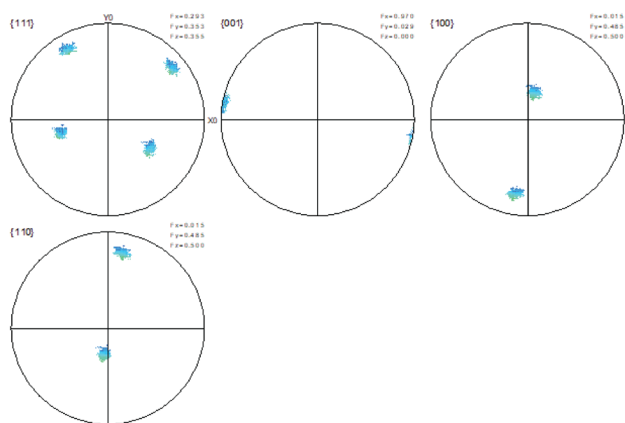


Fig. DR 2.3.2 Pole figures; Zircon (4/mmm); Complete data set; 2484 data points; Equal area projection; Lower hemispheres.

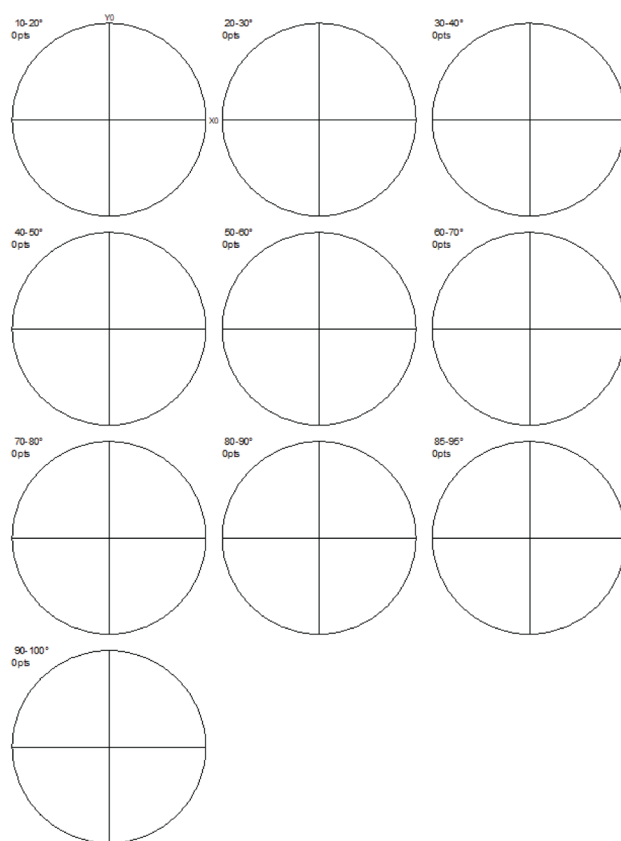


Fig. DR 2.3.3 Rotation axes; Zircon (4/mmm); Complete data set; 0 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	25.84 %									
Speed of Acquisition	4.41 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.33	33	35.30	13.02	16.00	63.00	1.13	0.27	0.59	1.75
Zircon	24.44	2409	56.20	15.26	20.00	112.00	0.90	0.20	0.32	1.95
ZrO2 mono-clinic	1.07	105	33.50	11.45	15.00	60.00	1.25	0.29	0.63	1.96
Zero Solutions	74.16	7309	29.76	9.98	0.00	82.00				

Grain 2

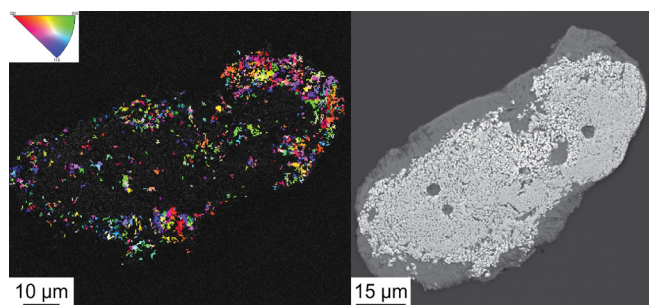


Fig. DR 2.3.4 Left) All phase IPF image of EBSD analyses; Step = 0.27 μm ; Grid = 358x313. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.01 mm; View field = 93.1 μm .

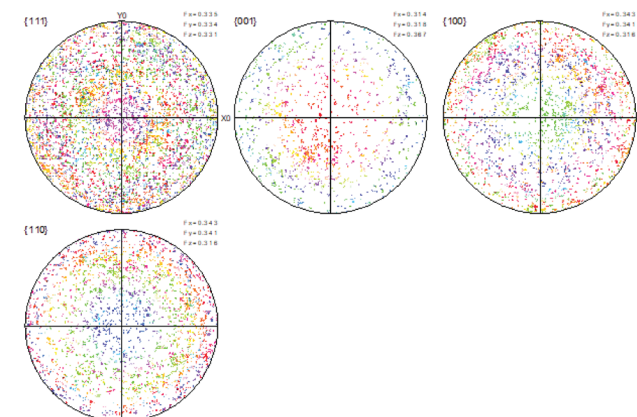


Fig. DR 2.3.5 Pole figures; Zircon (4/mmm); Complete data set; 5319 data points; Equal area projection; Lower hemispheres.

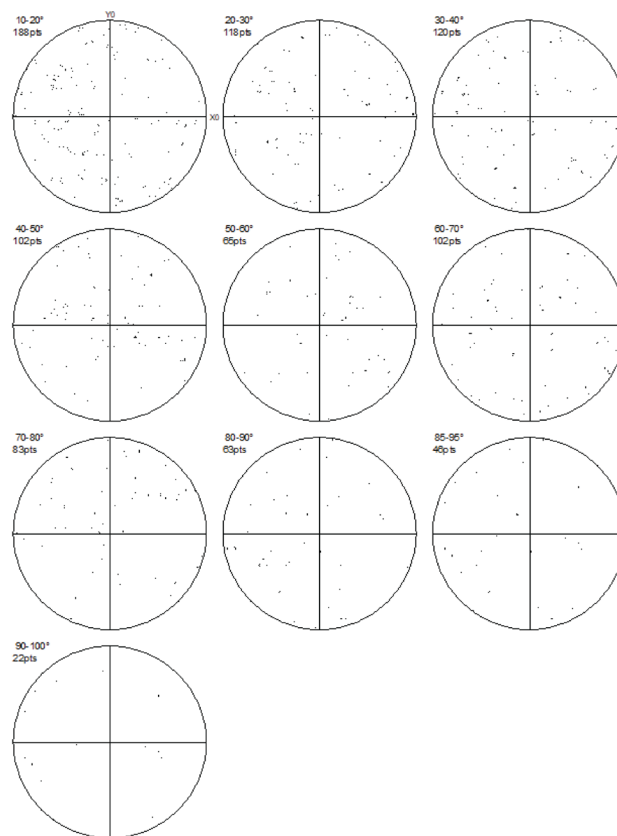


Fig. DR 2.3.6 Rotation axes; Zircon (4/mmm); Complete data set; 909 data points; Equal area projection; Lower hemispheres.

Settings										
Accelerating Voltage	15.00 kV									
Specimen Tilt (degrees)	70.00 °									
Hit Rate	9.25 %									
Speed of Acquisition	6.72 Hz									
Phases for acquisition										
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database		
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry		
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases		
ZrO2 monoclinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL		
Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.29	328	29.78	11.02	11.00	76.00	1.24	0.30	0.41	2.00
Zircon	7.57	8483	50.89	14.77	13.00	108.00	0.82	0.20	0.28	2.00
ZrO2 monoclinic	1.39	1558	35.99	16.28	11.00	93.00	1.10	0.35	0.37	2.00
Zero Solutions	90.75	101685	25.00	5.96	0.00	88.00				

Grain 8

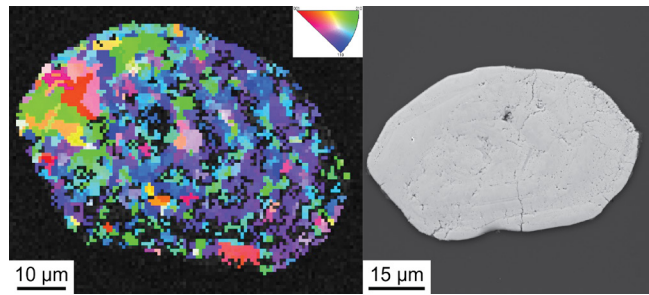


Fig. DR 2.3.7 Left) All phase IPF image of EBSD analyses; Step = 0.702 μm; Grid = 112x89. Right) BSE image of FE-SEM analyses; HV = 15.0 kV; WD = 9.01 mm; View field = 79.2 μm.

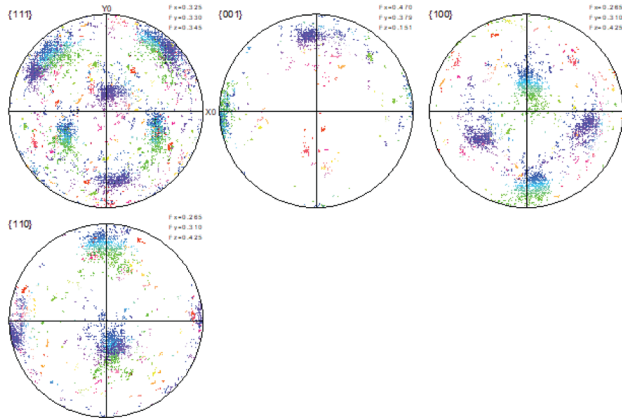


Fig. DR 2.3.8 Pole figures; Zircon (4/mmm); Complete data set; 4235 data points; Equal area projection; Lower hemispheres.

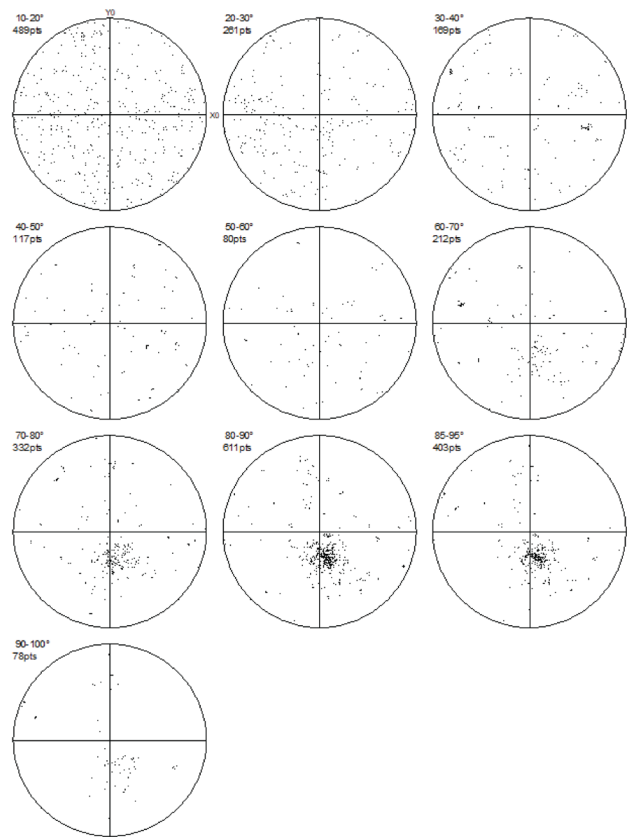


Fig. DR 2.3.9 Rotation axes; Zircon (4/mmm); Complete data set; 2752 data points; Equal area projection; Lower hemisphere.

Settings	
Accelerating Voltage	15.00 kV
Specimen Tilt (degrees)	70.00 °
Hit Rate	40.35 %
Speed of Acquisition	4.41 Hz

Phases for acquisition								
Phase	a	b	c	Alpha	Beta	Gamma	Space Group	Database
Reidite	4.57 Å	4.57 Å	9.98 Å	90.00 °	90.00 °	90.00 °	88	Reidite 30.88 GPa.cry
Zircon	6.61 Å	6.61 Å	5.98 Å	90.00 °	90.00 °	90.00 °	141	OINA Phases
Zr02 mono-clinic	5.15 Å	5.21 Å	5.31 Å	90.00 °	99.22 °	90.00 °	14	HKL

Phase fraction										
Phase Name	Phase Fraction (%)	Phase Count	Mean Band Contrast	Standard Deviation Band Contrast	Min Band Contrast	Max Band Contrast	Mean MAD	Standard Deviation MAD	Min MAD	Max MAD
Reidite	0.21	21	41.95	15.55	20.00	77.00	1.12	0.26	0.64	1.71
Zircon	39.43	3930	68.37	17.43	16.00	123.00	0.78	0.19	0.29	1.95
Zr02 mono-clinic	0.71	71	31.28	12.89	14.00	84.00	1.29	0.29	0.67	1.98
Zero Solutions	59.65	5946	29.27	10.12	0.00	92.00				