Appendix F

Characterization of As-Fabricated Model Alloys

a) **b)**

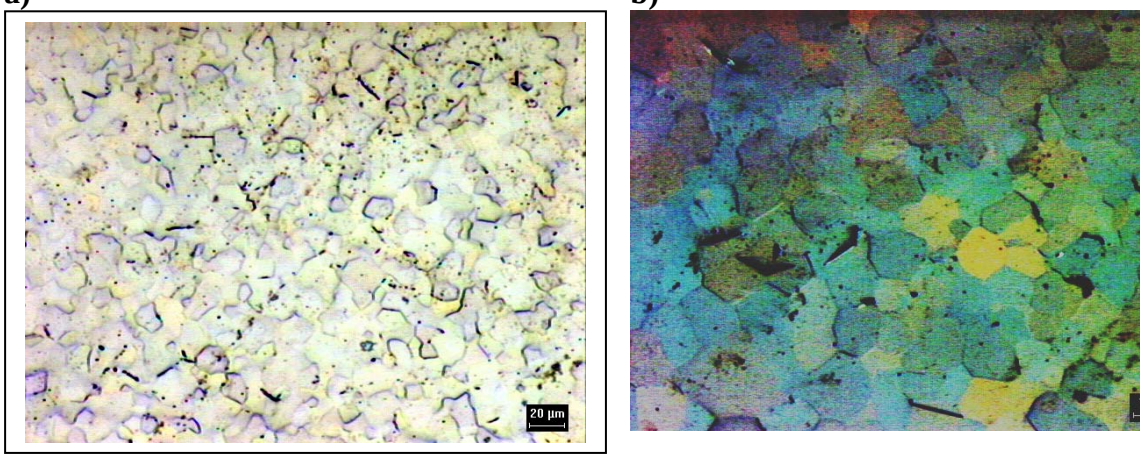

Figure F-1: Optical micrographs of sponge Zr, alloy 41 **a)** 200x and **b)** 500x.

a) **b)**

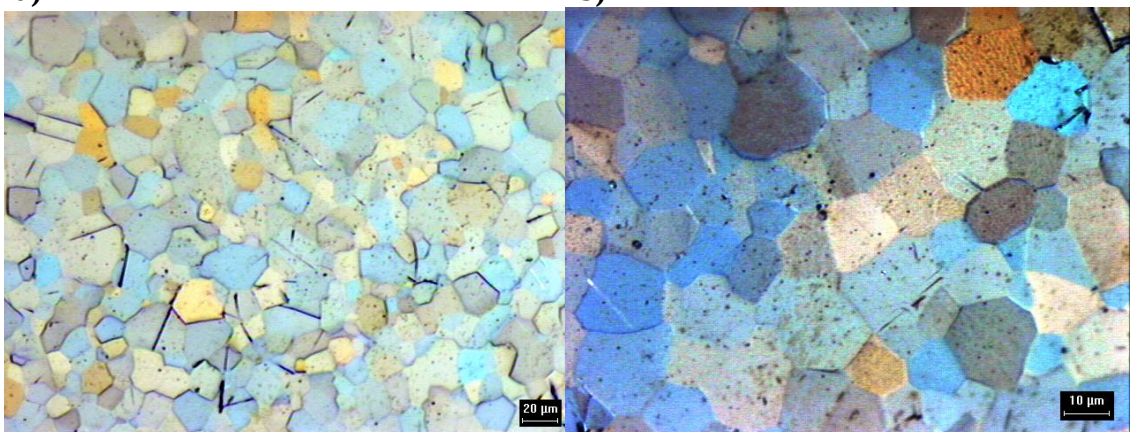

Figure F-2: Optical micrographs of crystal bar Zr, alloy 42 **a)** 200x and **b)** 500x.

a) **b)**

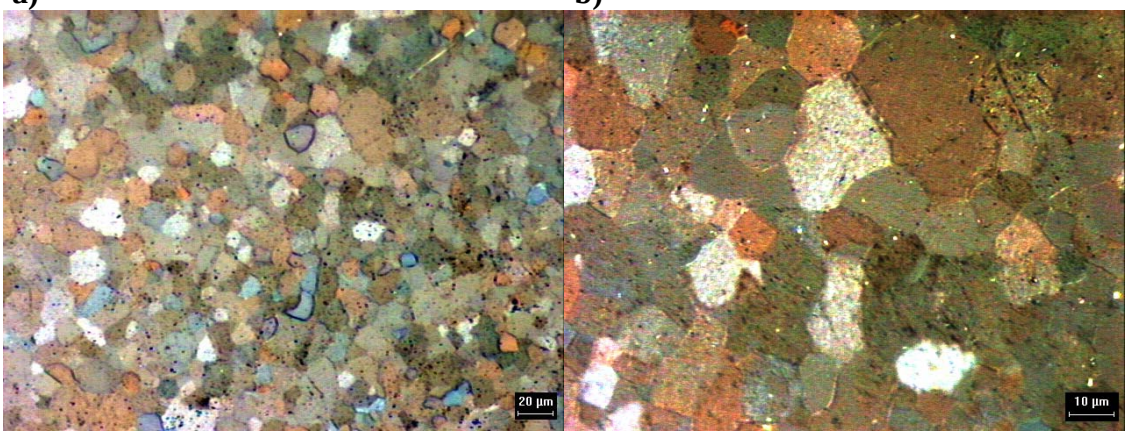

Figure F-3: Optical micrographs of alloy 43, Zircaloy-4 **a)** 200x and **b)** 500x.

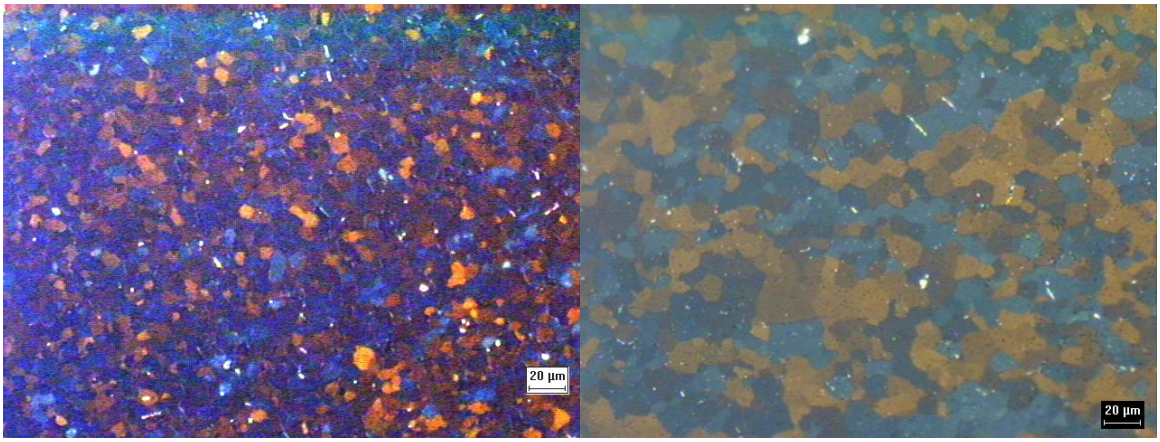

Figure F-4: Optical micrographs of **a)** alloy 11, Zr-0.2Fe-0.1Cr annealed at 580°C 200x and **b)** alloy 12, Zr-0.2Fe-0.1Cr annealed at 720°C 200x.

Basal Pole Figures for Model Alloys

The pole figures are shown in Figure F-5

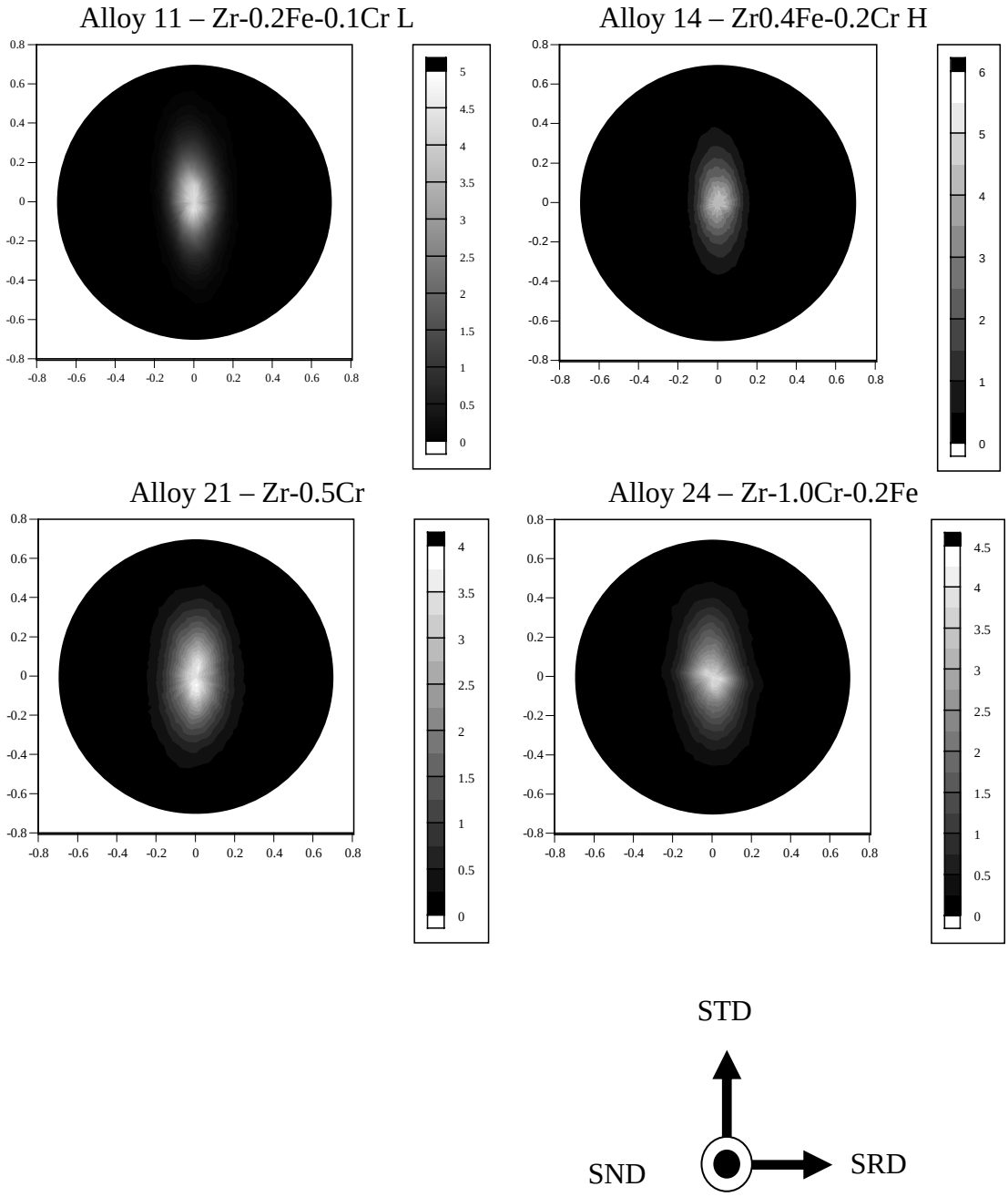

Figure F-5: Zr HCP (0002) pole figures for the ZrFeCr and ZrCrFe alloys (SRD = Sheet Rolling Direction, STD = Sheet Transverse Direction, SND = Sheet Normal Direction).

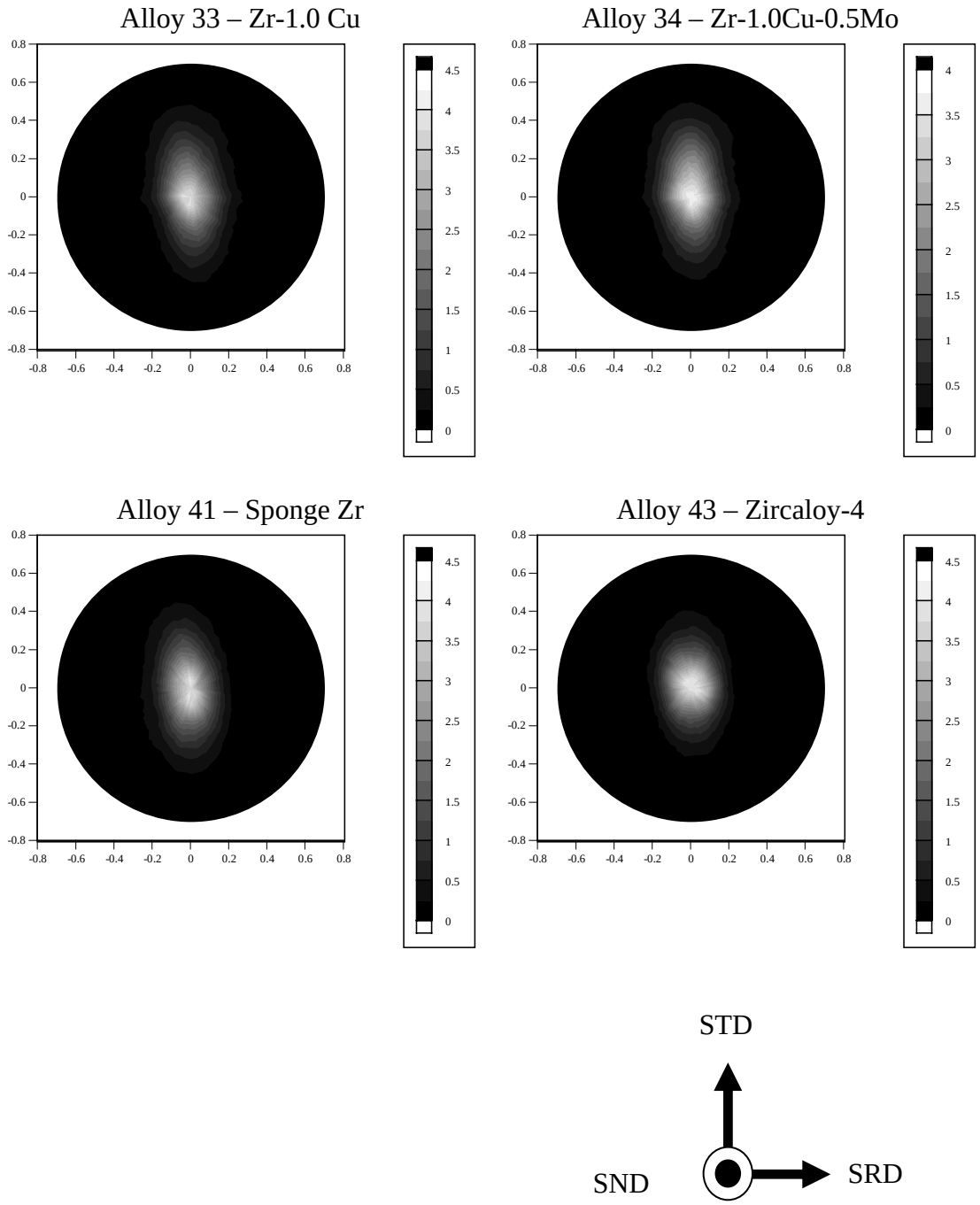

Figure F-6: Zr HCP (0002) pole figures for the ZrCu, ZrCuMo, Sponge Zr and Zircaloy-4 (SRD = Sheet Rolling Direction, STD = Sheet Transverse Direction, SND = Sheet Normal Direction).

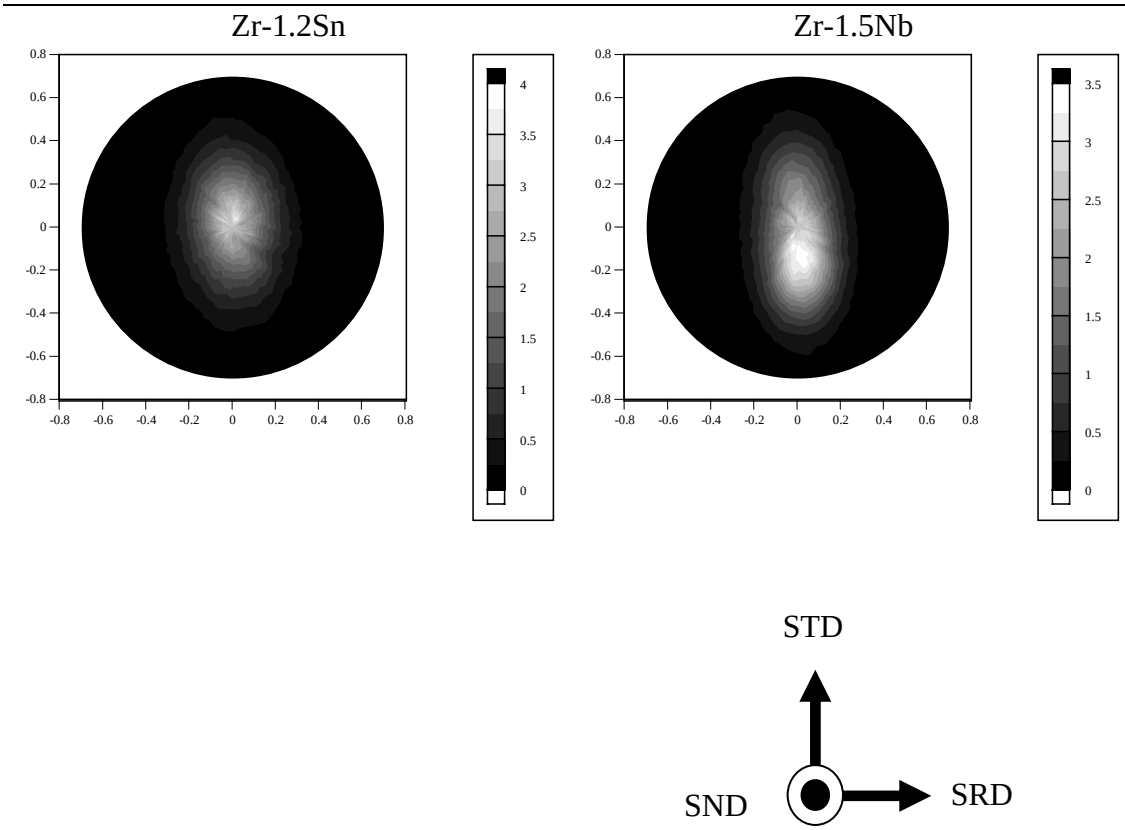

Figure F-7: Zr HCP (0002) pole figures for the ZrSn and ZrNb alloys (SRD = Sheet Rolling Direction, STD = Sheet Transverse Direction, SND = Sheet Normal Direction).