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A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in the Faculty of Science and Engineering.

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School of Natural Sciences, Department of Materials

Contents

List of Figures

List of Tables

Abstract

Add your abstract

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Chapter 1

Introduction

The label allows you to cite this chapter in the following chapters

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1.1 Add subsections

*1.1.1. **And subsubsections***

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- And my objective 3

Chapter 2

Literature Review

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Let's add one equation that you can cite in your text 1

$$y = mx + n \tag{1}$$

Let's add a table that you can reference in the text too, Table 1. I prefer to add tables as figures, but they can also be created here in the visual editor very easily or with some latex code.

Table 1: Parameters that I use in my experiments

Stage 1 - Inhomogeneous deformation at grain scale - early stage		**Stage 2 - Inhomogeneous deformation at grain scale**	
Events	Strain accommodation	Events	Intense slip bands within grains
	Formation of fine slip lines within grains		Slip bands across the grains appear
Consequences	GB relief but still good adhesion	Consequences	GB decohesion and voids formation
	Grain-level surface roughness		Surface roughness increases
Stage 3 - Further deformation to surface undulations		**Stage 4 - Further deformation to fracture**	
Events	Grooving behaviour	Events	The shear bands concentrate the strain
	Orthogonal transgranular shear bands at the valleys		The shear bands promote the formation of cracks
Consequences	Surface ridging	Consequences	Cracks generate and propagate through the thickness
	Subsurface sheared zone where second-phase particles can also initiate shear bands		Fracture

You can add Figures too, like in Figure 2.1, with papers cited in the caption.

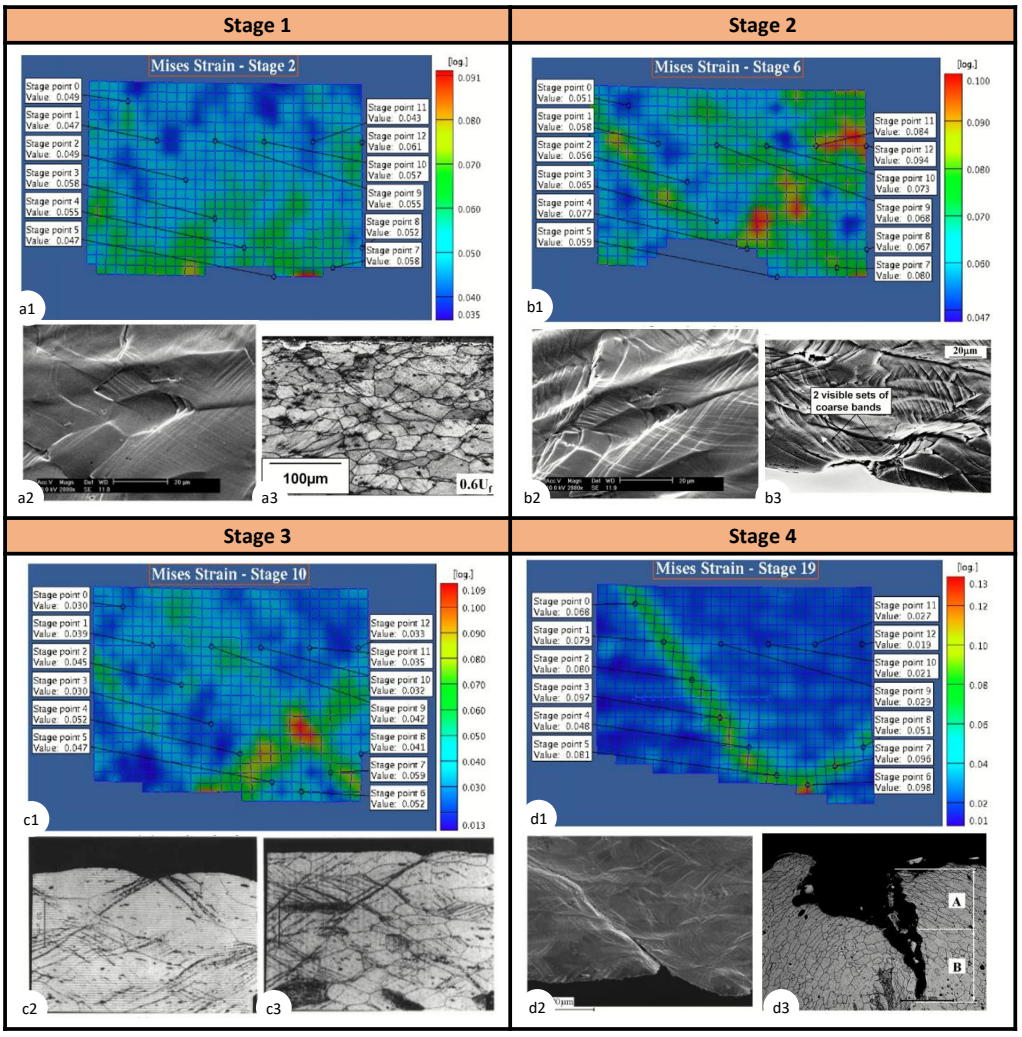

Figure 2.1: Microstructural features at different bending stages from low (a) to high (d) degree of deformation. a1, b1, c1 and d1 are strain maps at the outer sample surface [4] (the outer surface is at the bottom of the maps). a2 [5] and a3 [6]: thin slip lines within the grains. b2 [5] and b3 [6]: wider slip lines and transgranular shear bands. c2 and c3: surface ridging and the subsurface sheared zone [7]. d2 [4] and d3 [5]: cracks that appear and propagate at the outer surface of the sample.

Chapter 3

Methodology

Chapter 4

Chapter of results

Chapter 5

Second chapter of results

Chapter 6

A third chapter of results

Chapter 9

Conclusions

Chapter 10

Future work

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