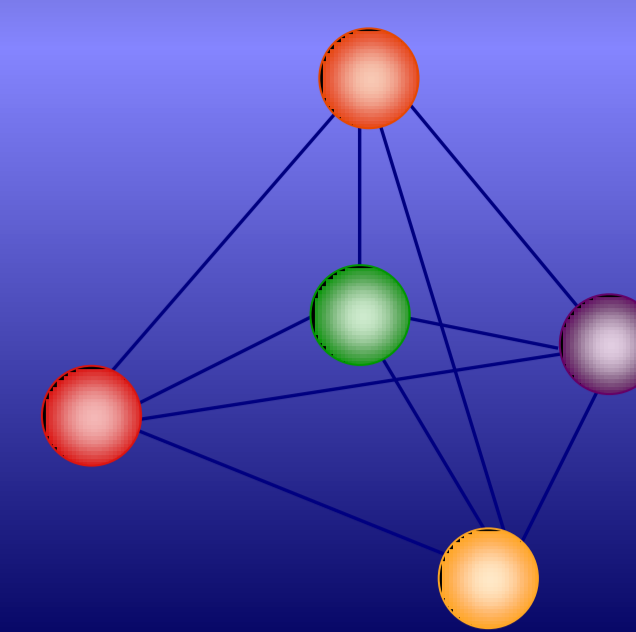


# Mechanical testing of electrodeposited Ni film parallel and vertical to crystal growth direction using micro-sized cantilever specimens

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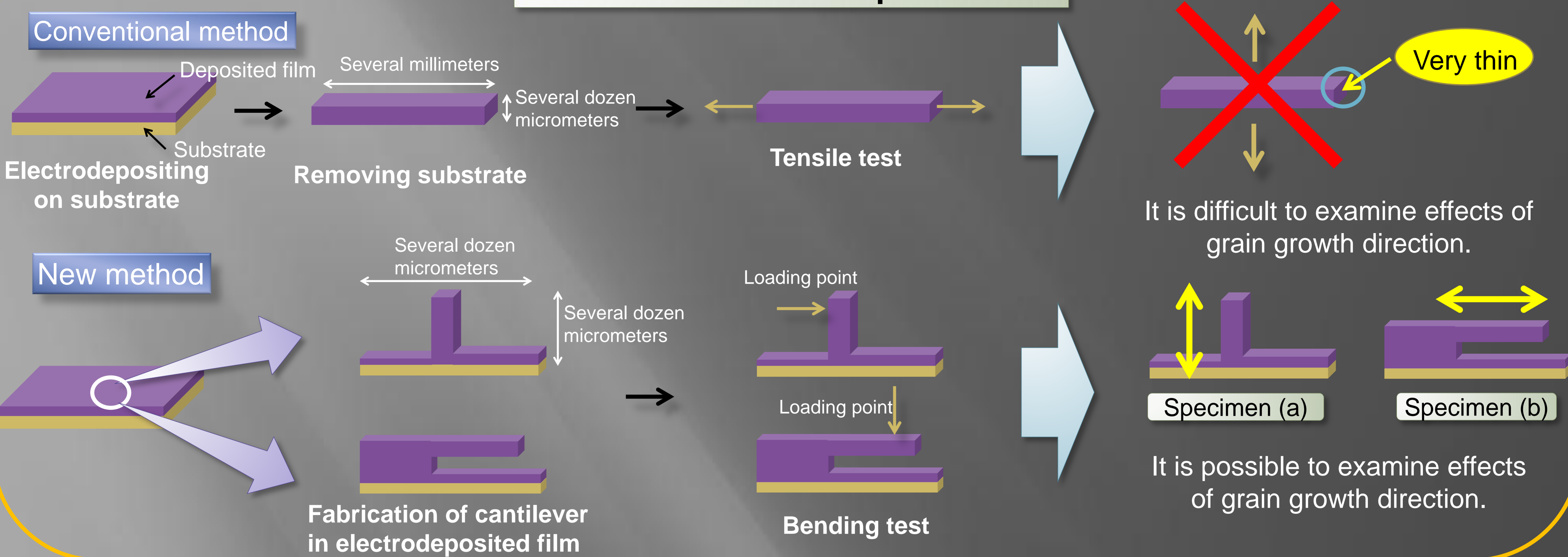
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## Introduction

### Evaluation of electrodeposited film



## Experimental

### ● Electrodeposited Ni film

#### Substrate

Cu substrate  
Reduction rate of cold rolling : 25%  
Heat treatment : 1000K 1h

#### Condition

Watt bath : NiSO<sub>4</sub>(300g/L), NiCl<sub>2</sub>(50g/L),  
H<sub>3</sub>BO<sub>3</sub>(50g/L)  
additive free  
Current density : 150A/m<sup>2</sup>  
Temperature : 323K

### ● Bending test

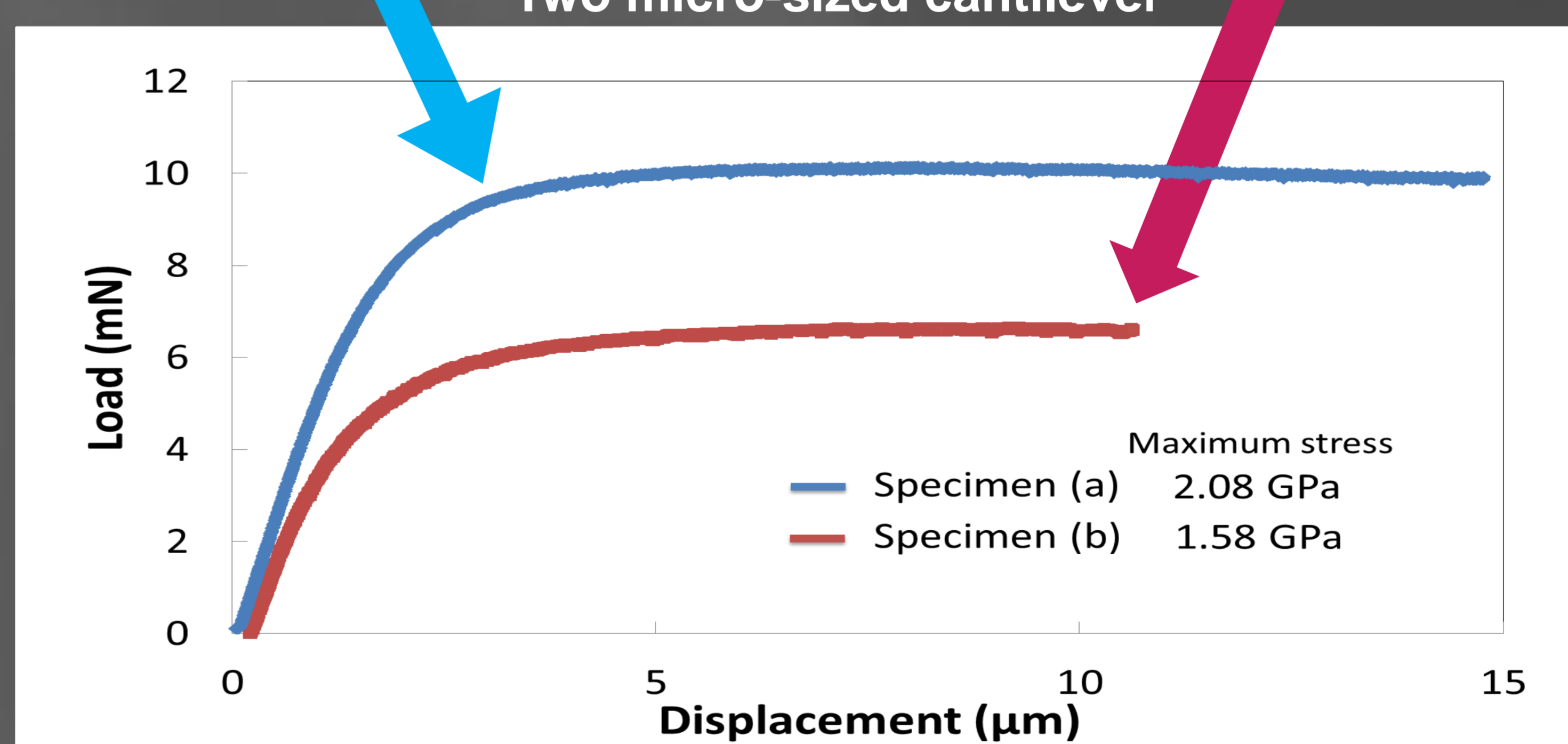
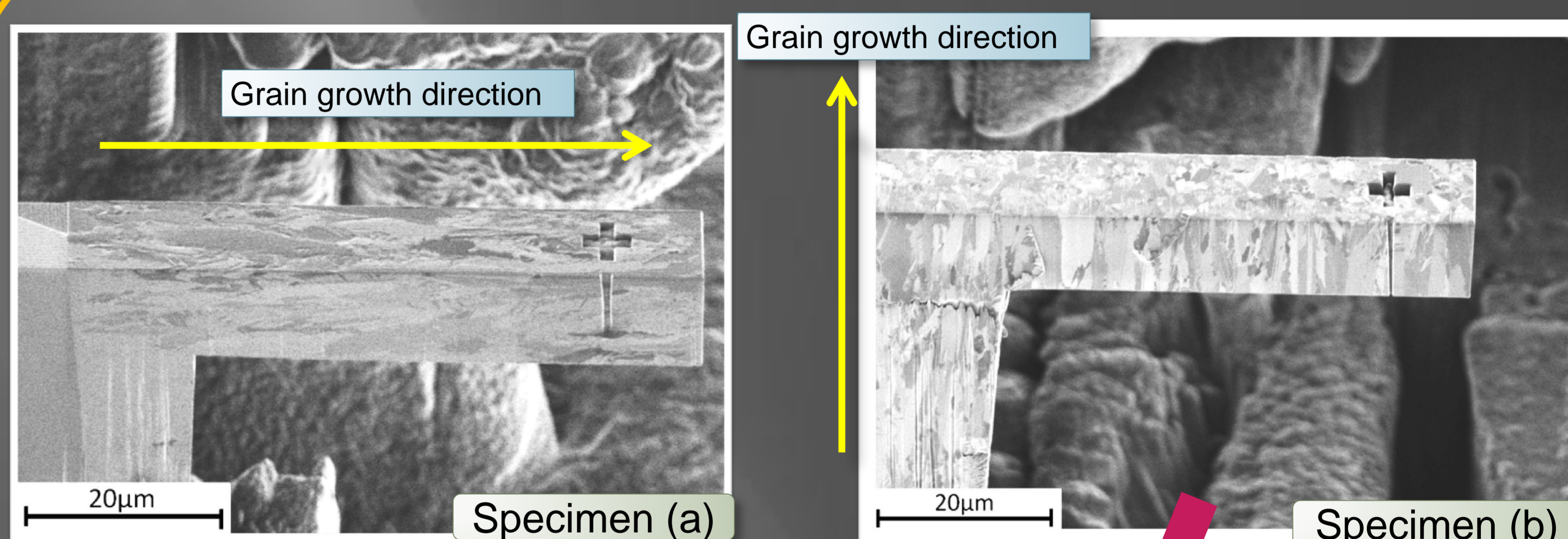
#### Micro-sized cantilever

Size : 10×10×50μm  
Loading point : 40 μm from fixed end

#### Condition

Displacement rate : 0.1 μm/s

## Result



Results of bending test

## Discussion

### Results of EBSD analysis

- Deformation twin was observed at around the fixed end in specimen (a)
- Occurrence of deformation twinning is different

## Summary

Difference in strength of anisotropic structure revealed by using micro-sized cantilever

