

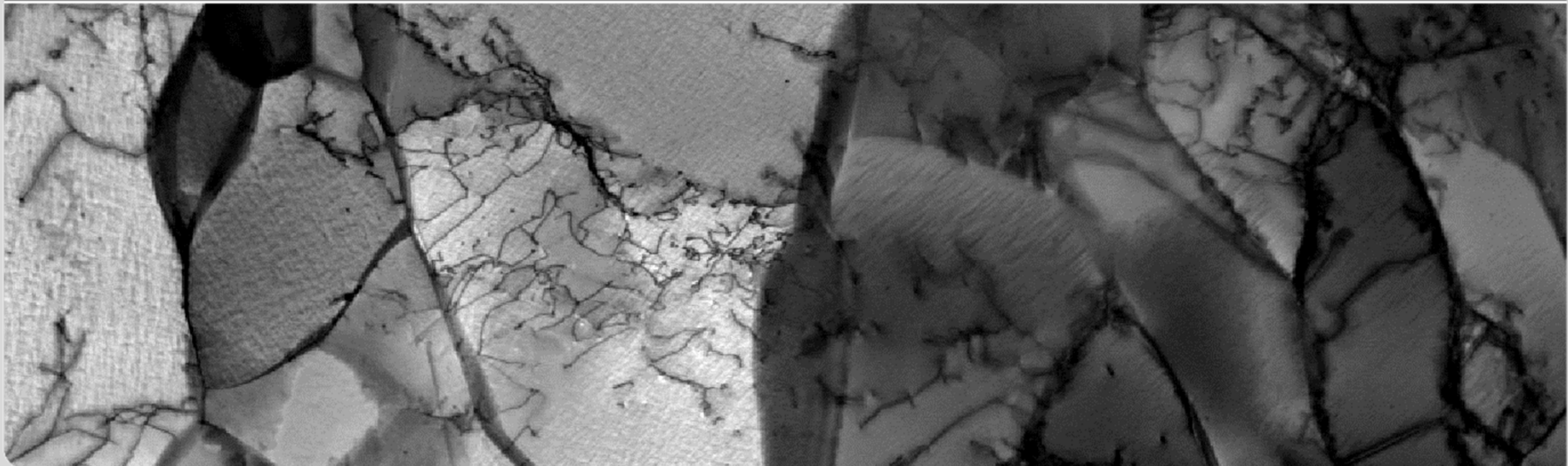
## Ductilisation of tungsten (W) through cold rolling

J. Reiser<sup>1</sup>, S. Bonk<sup>1</sup>, C. Bonnekoh<sup>1</sup>, J. Hoffmann<sup>1</sup>, U. Jäntschi<sup>1</sup>, M. Klimenkov<sup>1</sup>, R. Pippan<sup>2</sup>, A. Hoffmann<sup>3</sup>, M. Rieth<sup>1</sup>

- 1) Karlsruhe Institute of Technology, Institute for Applied Materials, Germany
- 2) Erich Schmid Institute of Materials Science, Leoben, Austria
- 3) PLANSEE SE, Reutte, Austria

Tue. 30 May 2017, PLANSEE Seminar, RM 9, 15:20

INSTITUTE FOR APPLIED MATERIALS, APPLIED MATERIALS PHYSICS



# Introduction

- Innovative structural material for high-temperature energy conversion systems



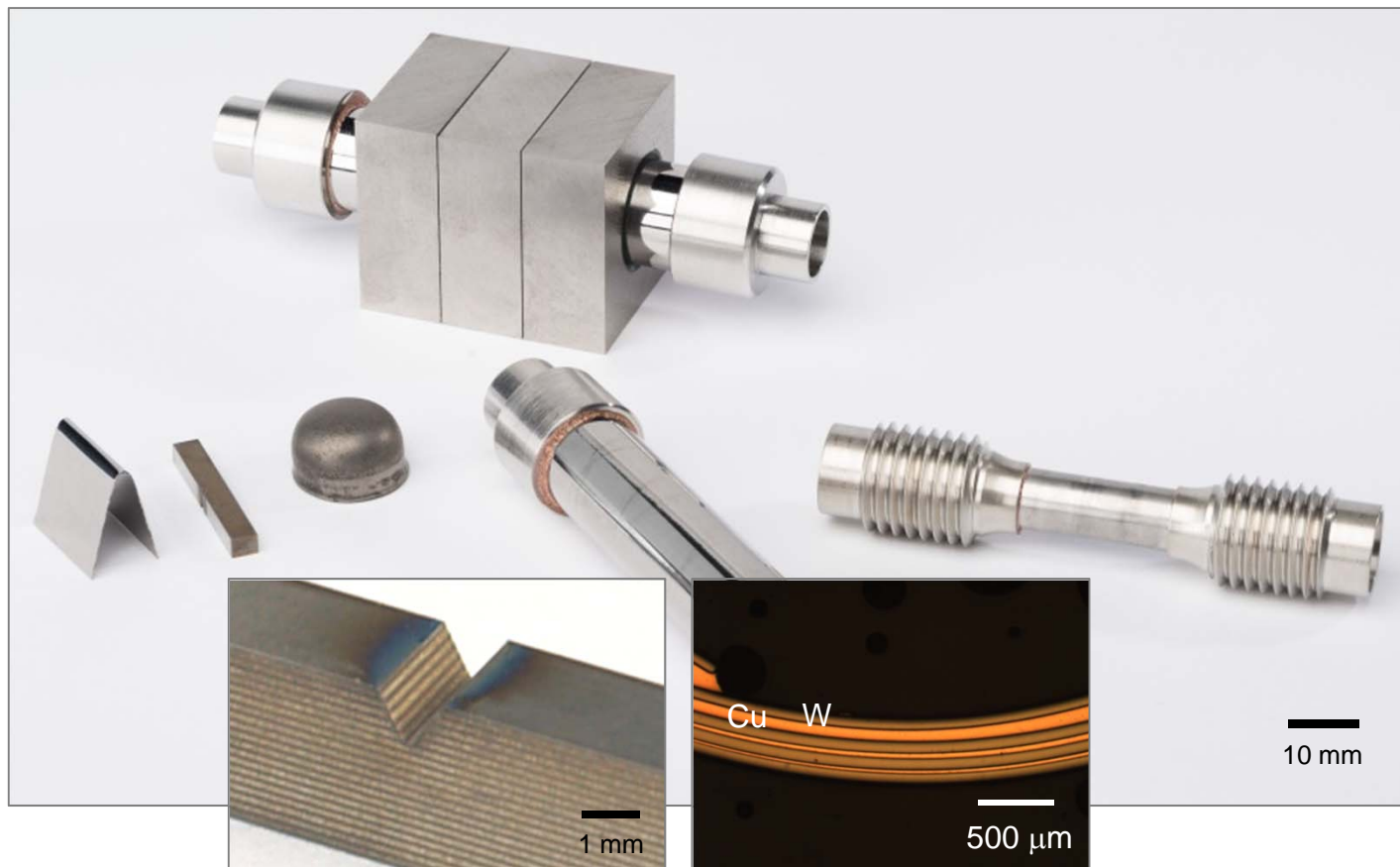
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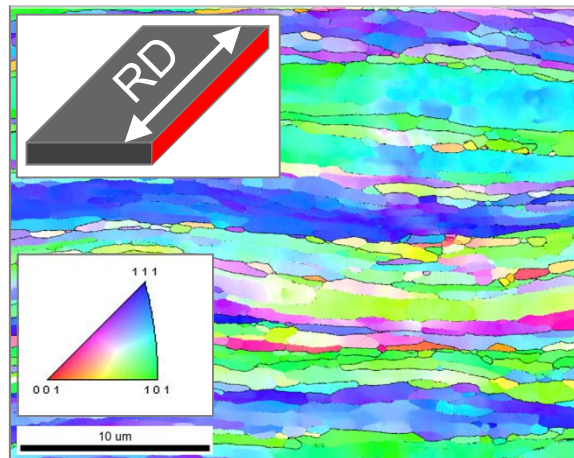


# Materials and microstructure

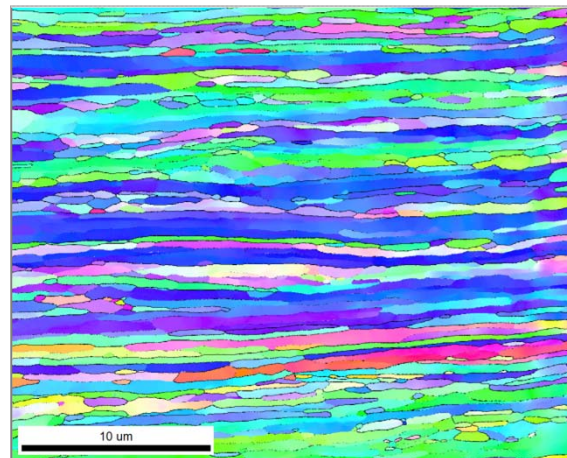
- 5 plates, rolled-out from one sintered ingot, > 99.97 wt % W

Thickness [mm]	Sintered ingot	1	0.5	0.3	0.2	0.1
$\varphi$	/	1.7	2.4	2.91	3.31	4
$T_{rolling}$	/	< 1250°C (1523 K)				

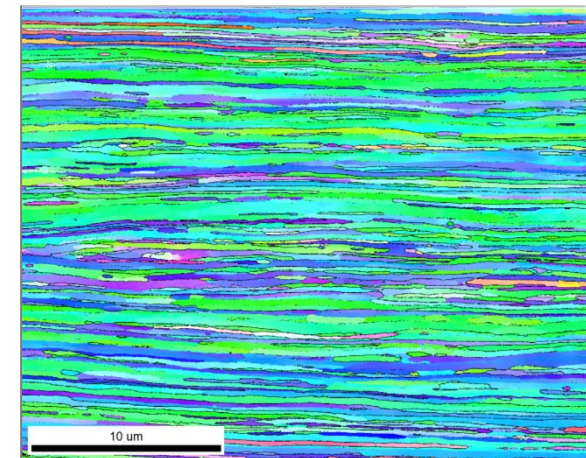
W, thickness of 1 mm



W, thickness of 0.3 mm

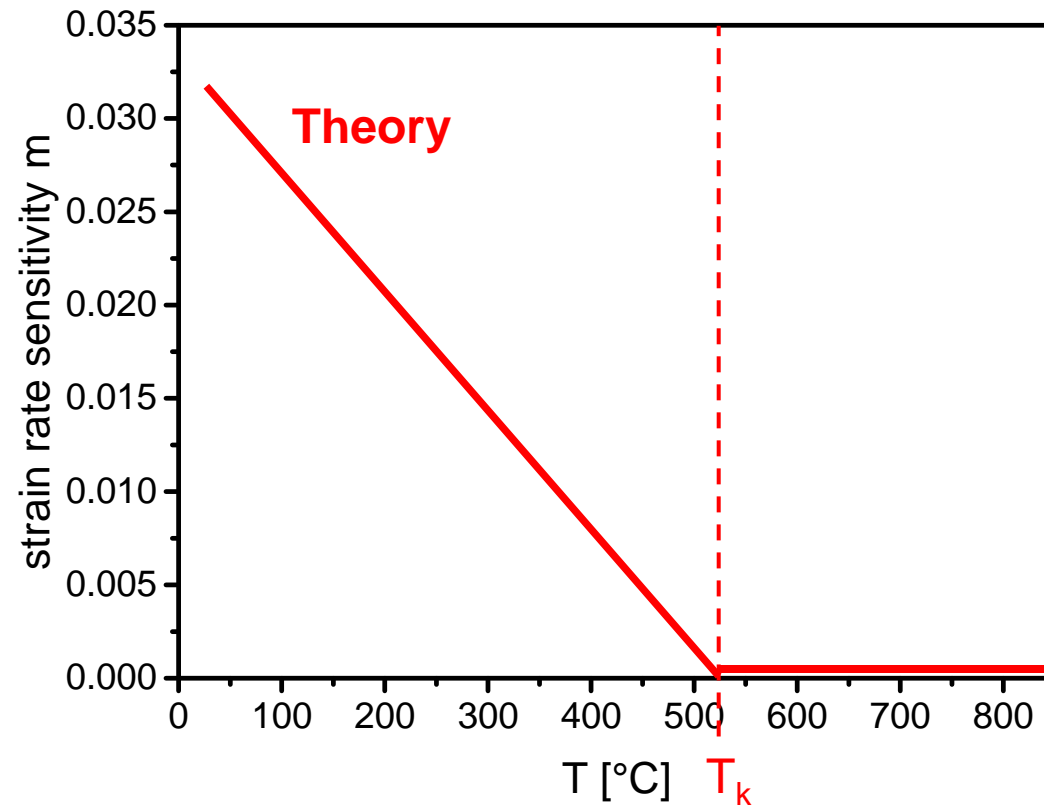


W, thickness of 0.1 mm



# Ductility (I): Strain rate jump tests

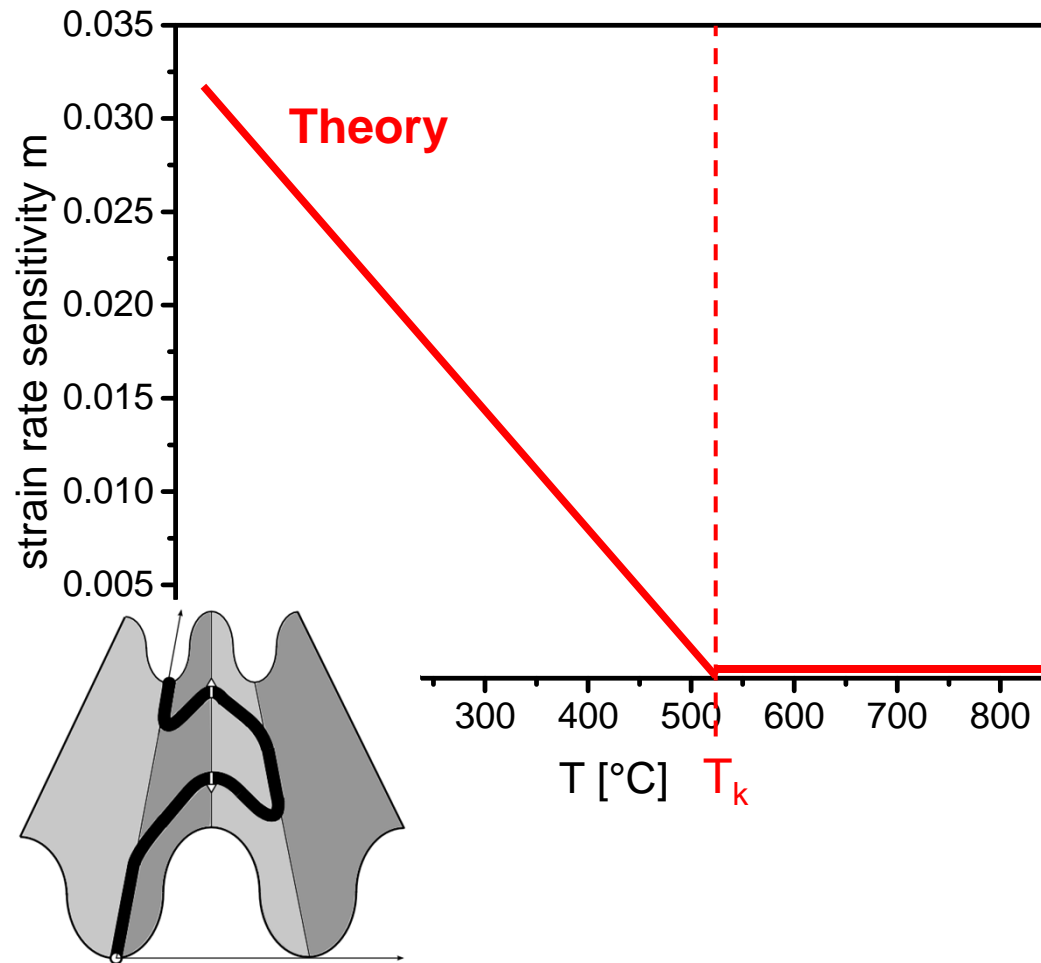
## ■ Results





# Ductility (I): Strain rate jump tests

## ■ Results



## Summary and outlook

- Pipes made of cold-rolled, ultrafine-grained W sheets



# Thank you for your attention

The authors are grateful to:

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Erich Schmid Institute of Materials Science,  
PLANSEE SE

Meet us at the poster session:

Tue. 18:00 – 22:00, RM62 and RM63

