

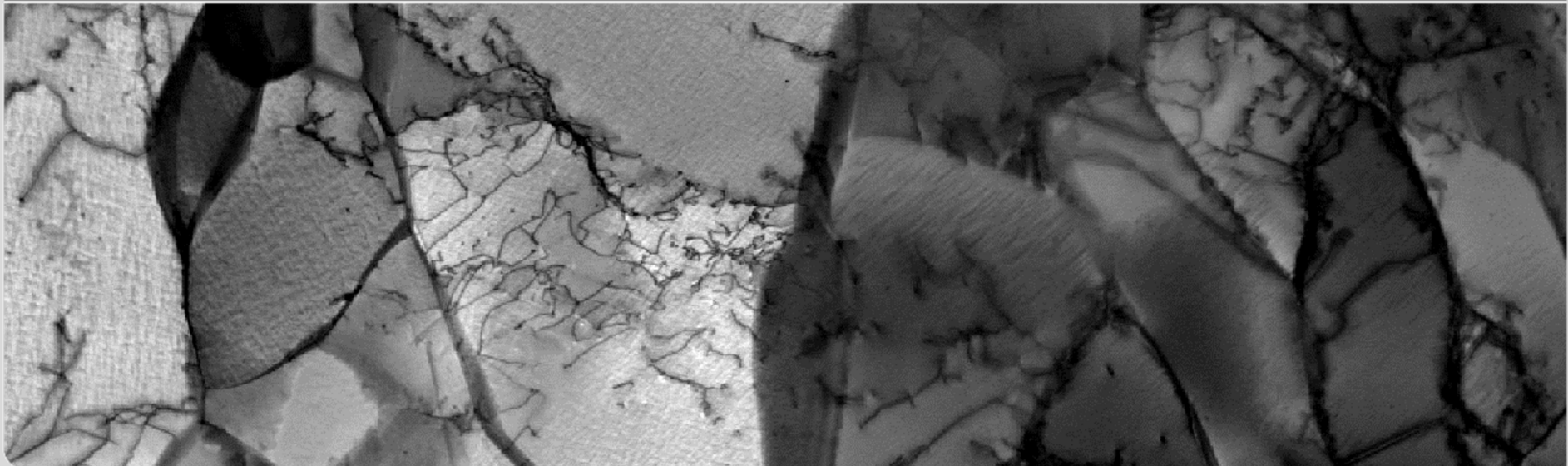
Ductilisation of tungsten (W) through cold rolling

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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



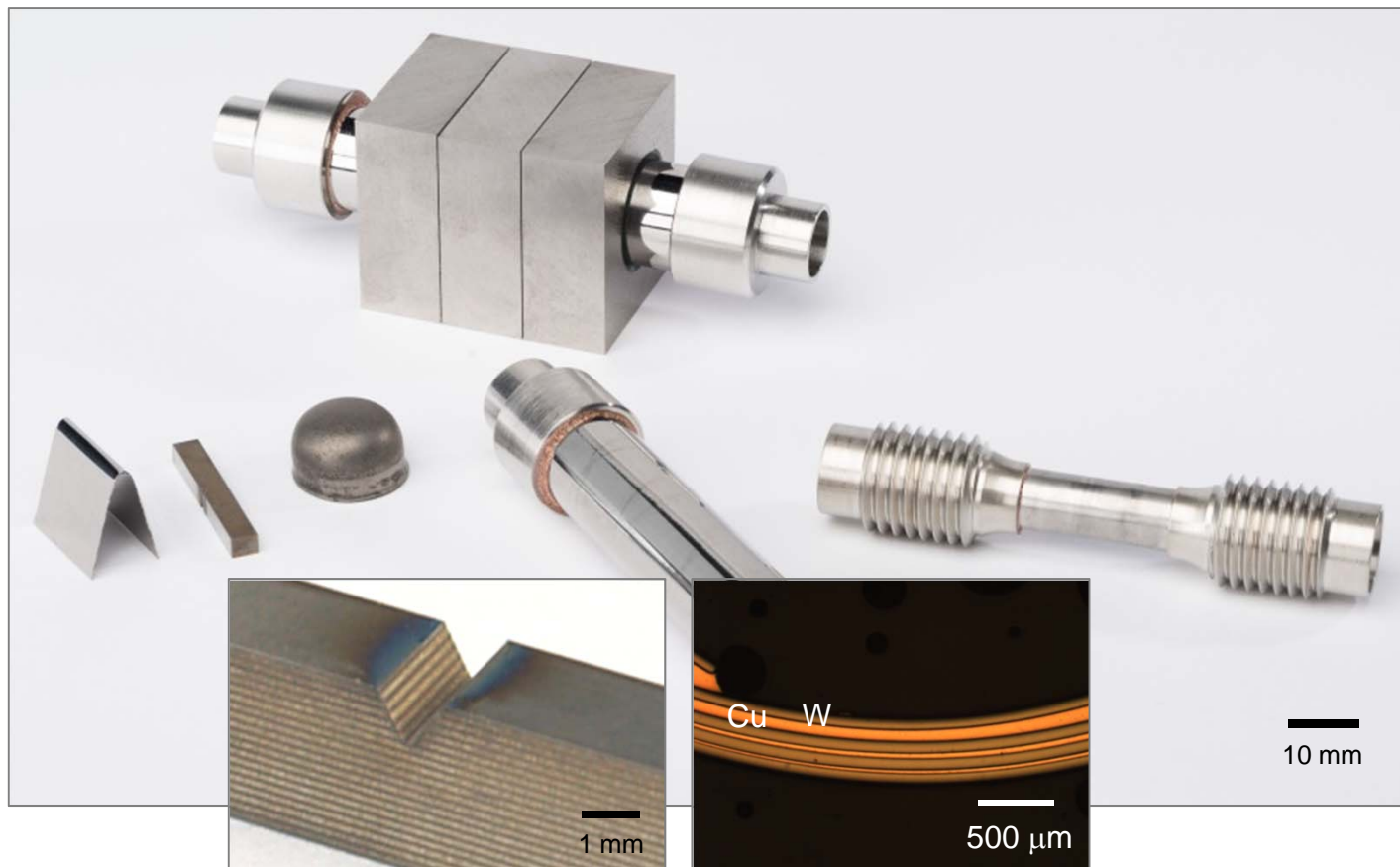
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- Innovative structural material for high-temperature energy conversion systems



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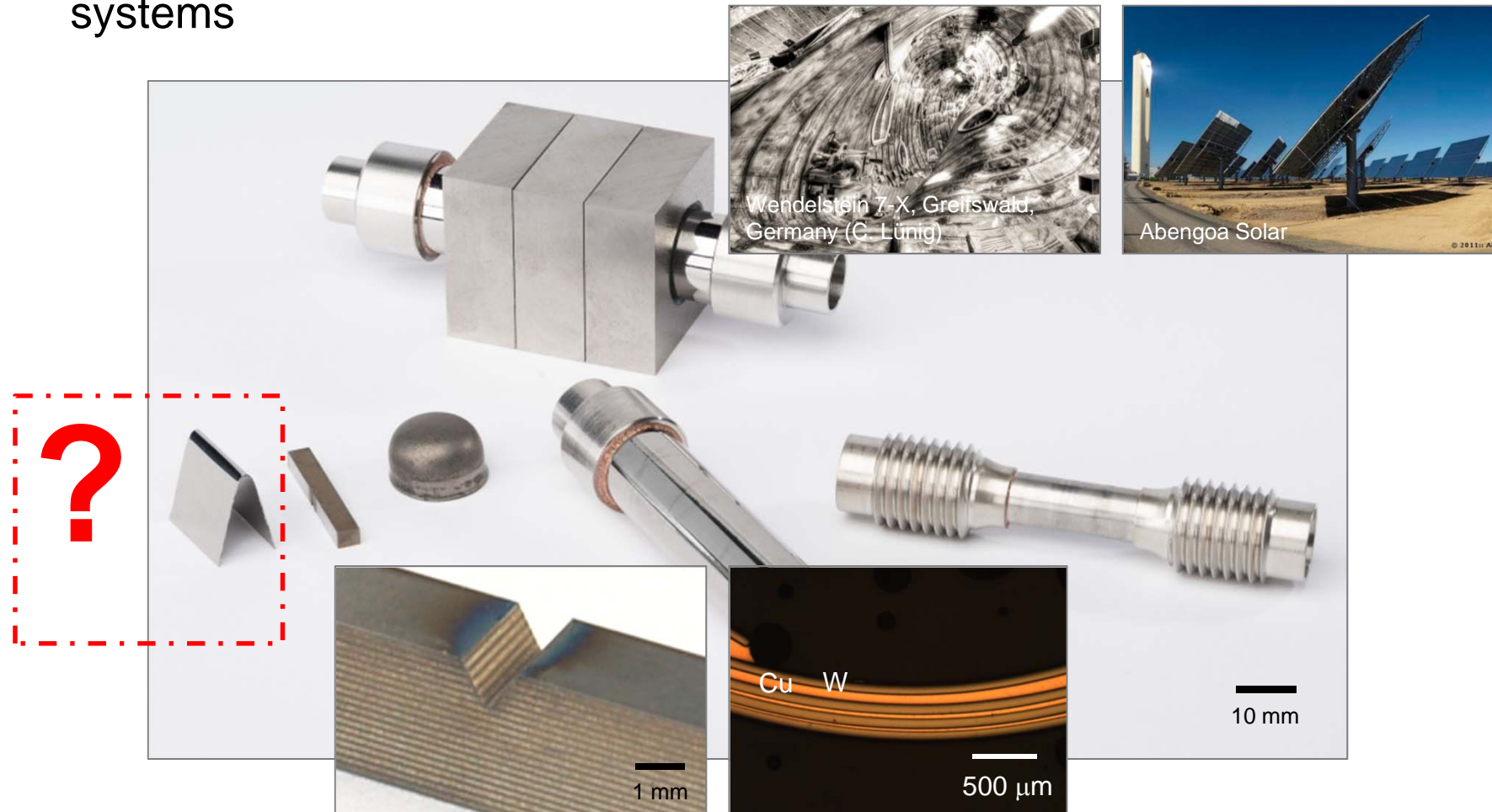
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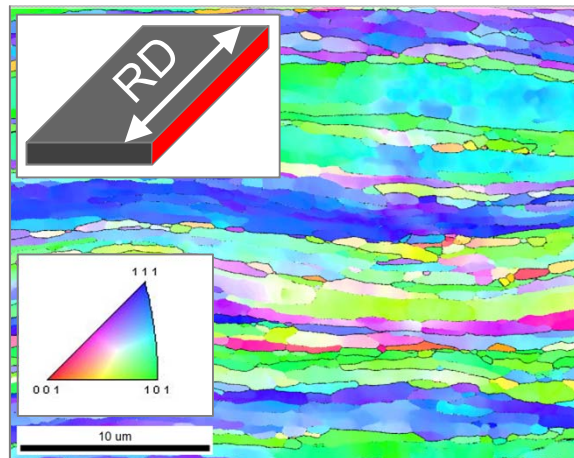


Materials and microstructure

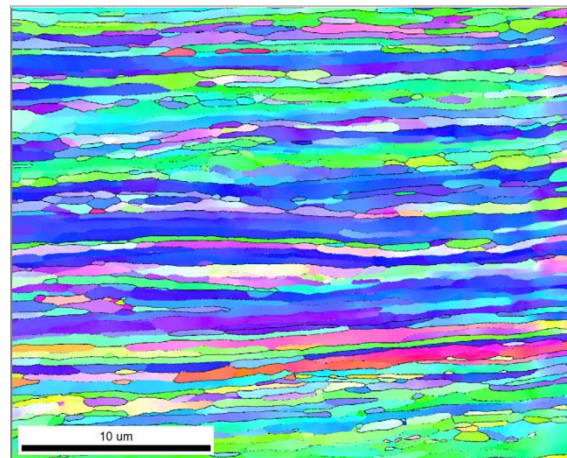
- 5 plates, rolled-out from one sintered ingot, > 99.97 wt % W

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

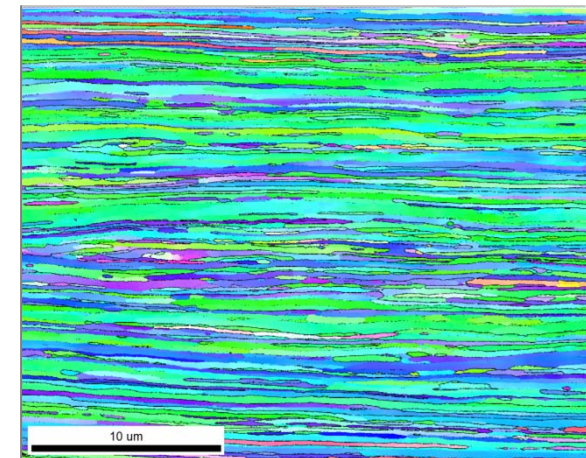
W, thickness of 1 mm



W, thickness of 0.3 mm

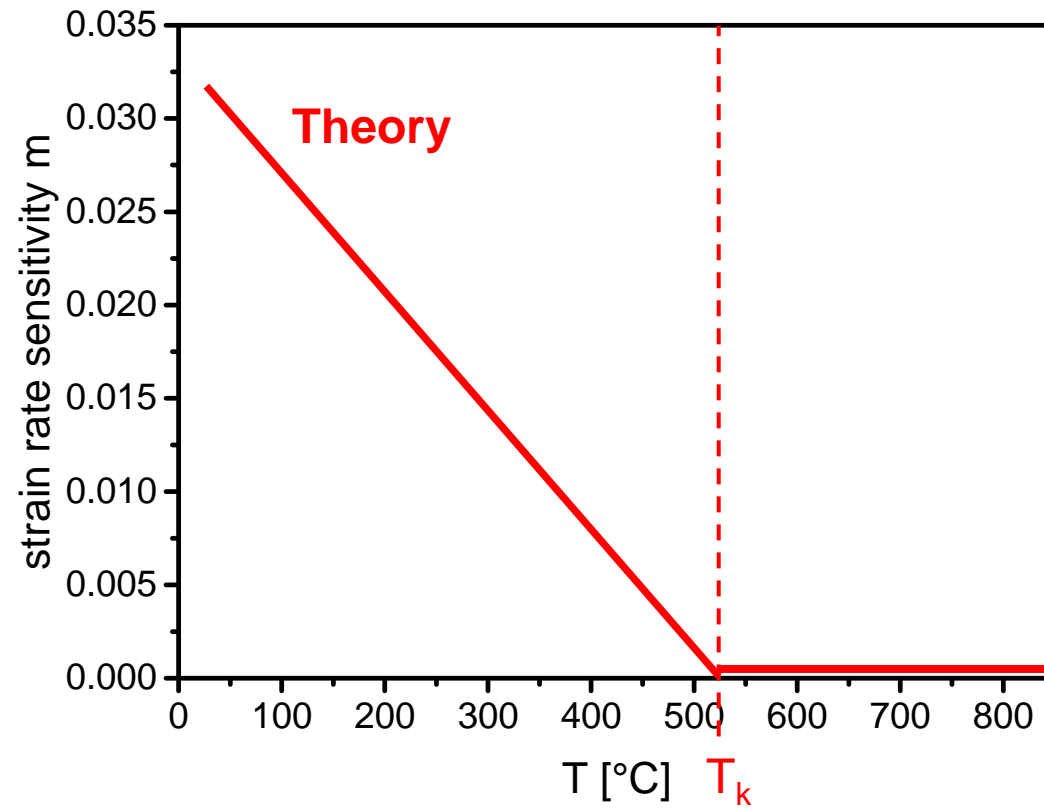


W, thickness of 0.1 mm



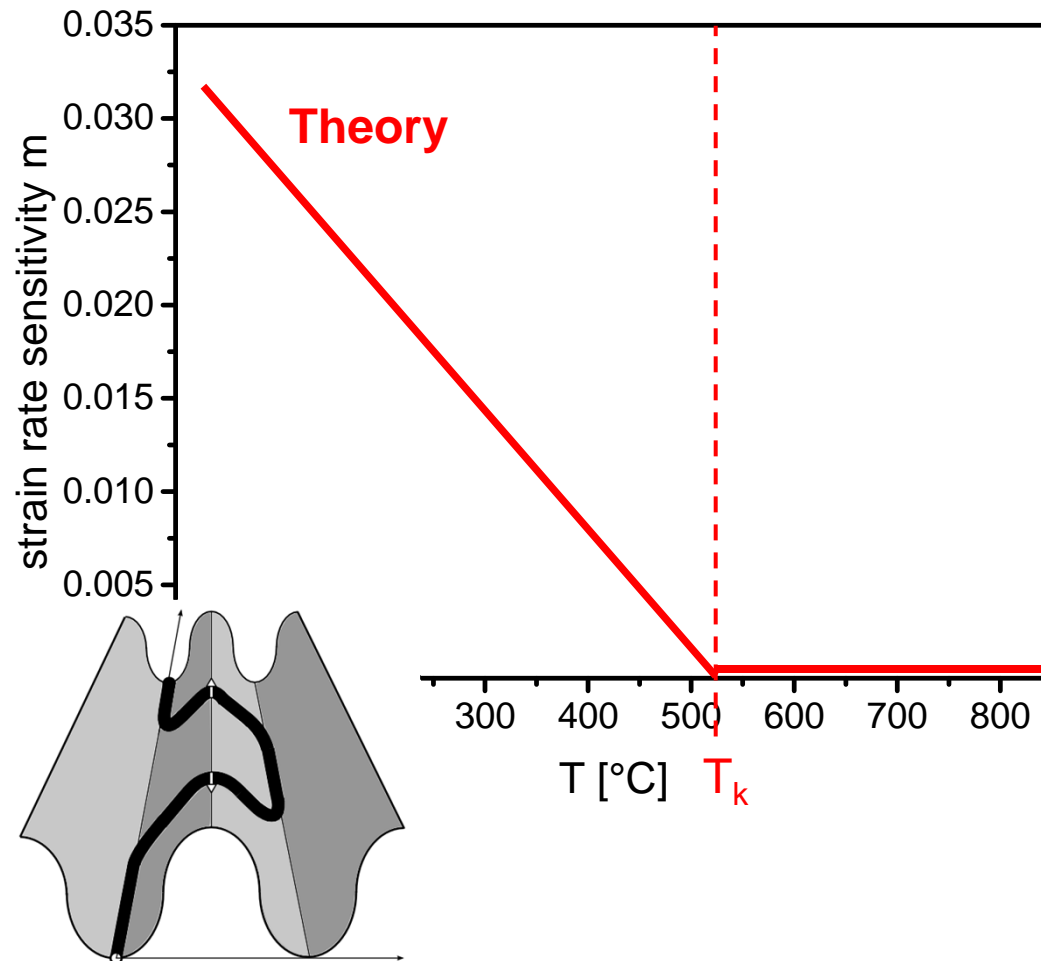
Ductility (I): Strain rate jump tests

■ 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

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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

