

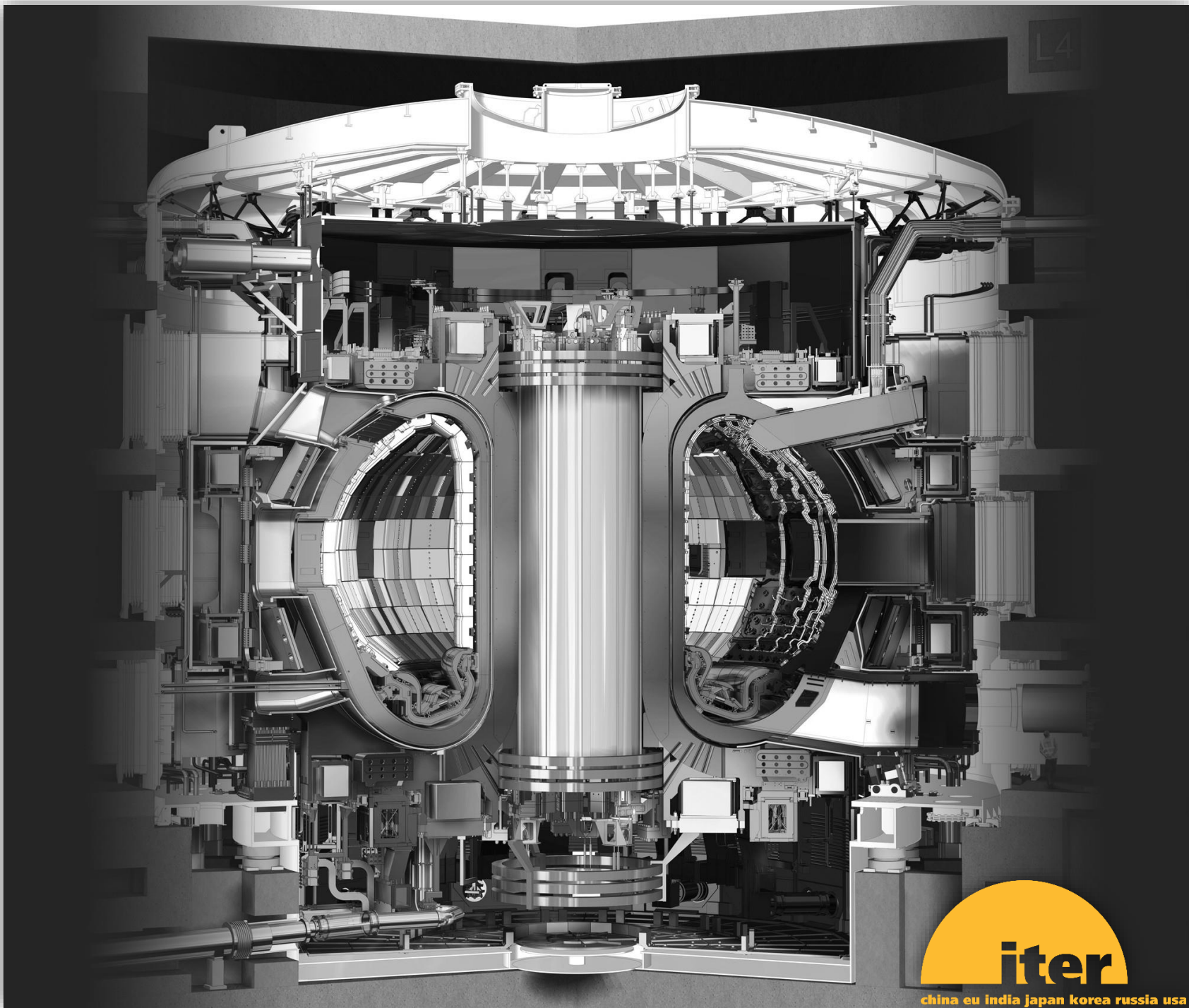
FRACTURE TOUGHNESS AND MICROSTRUCTURAL STABILITY OF HEAVILY DEFORMED TUNGSTEN MATERIALS

Vladica Nikolić

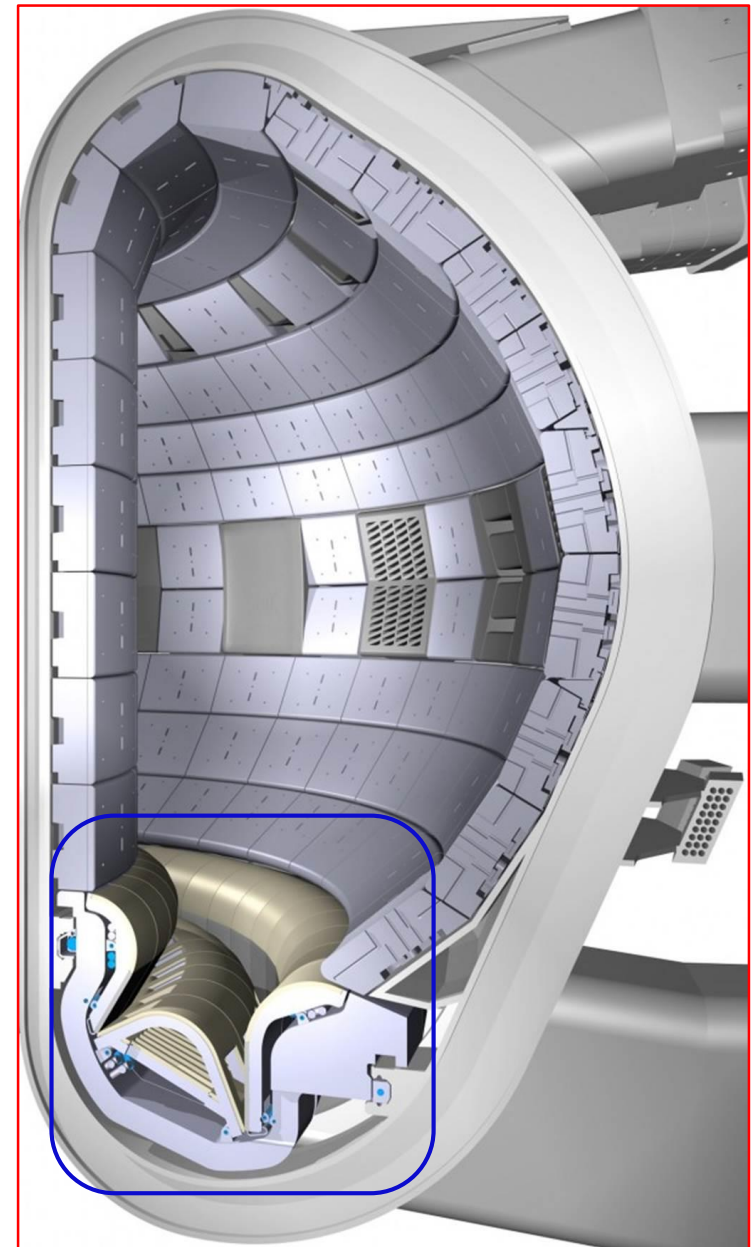
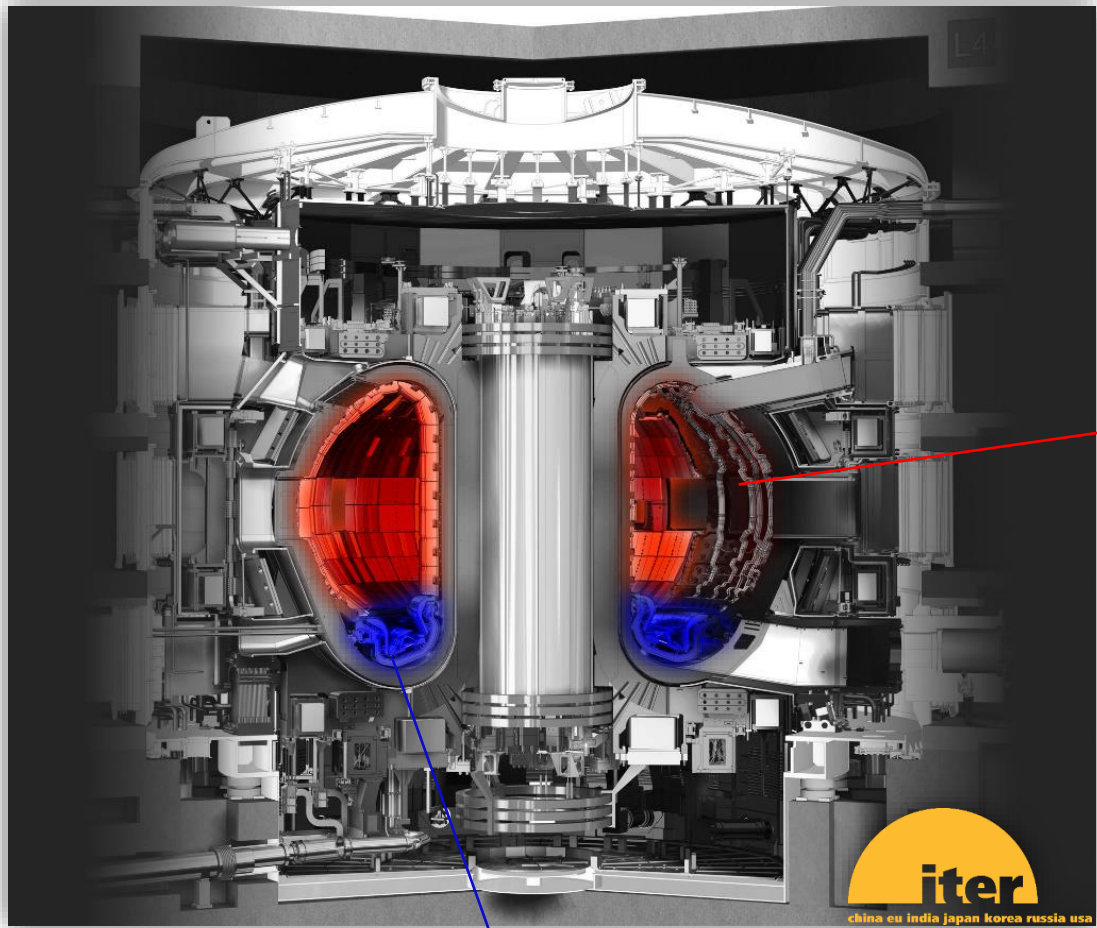


EUROfusion





china eu india japan korea russia usa



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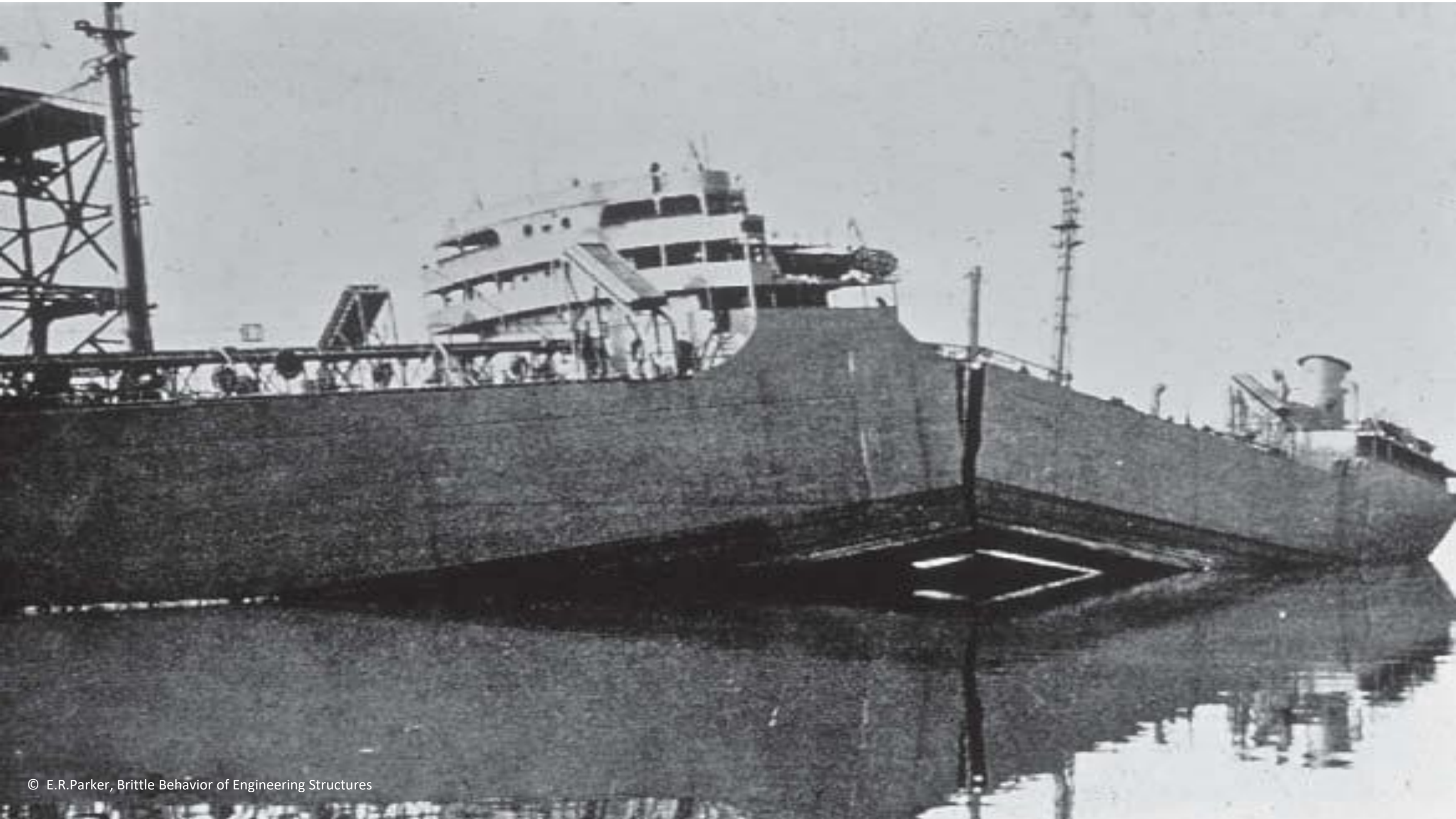
TUNGSTEN

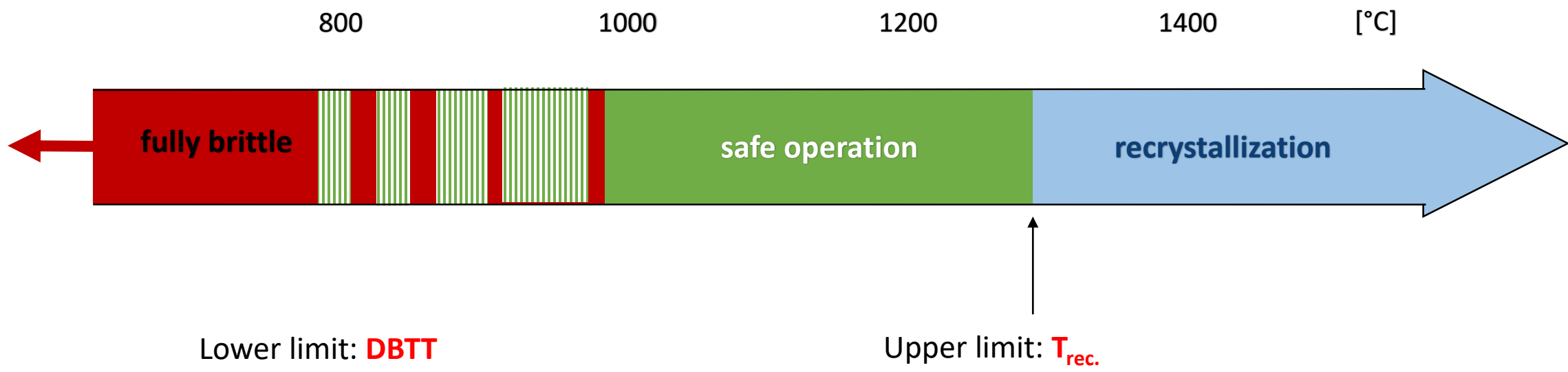


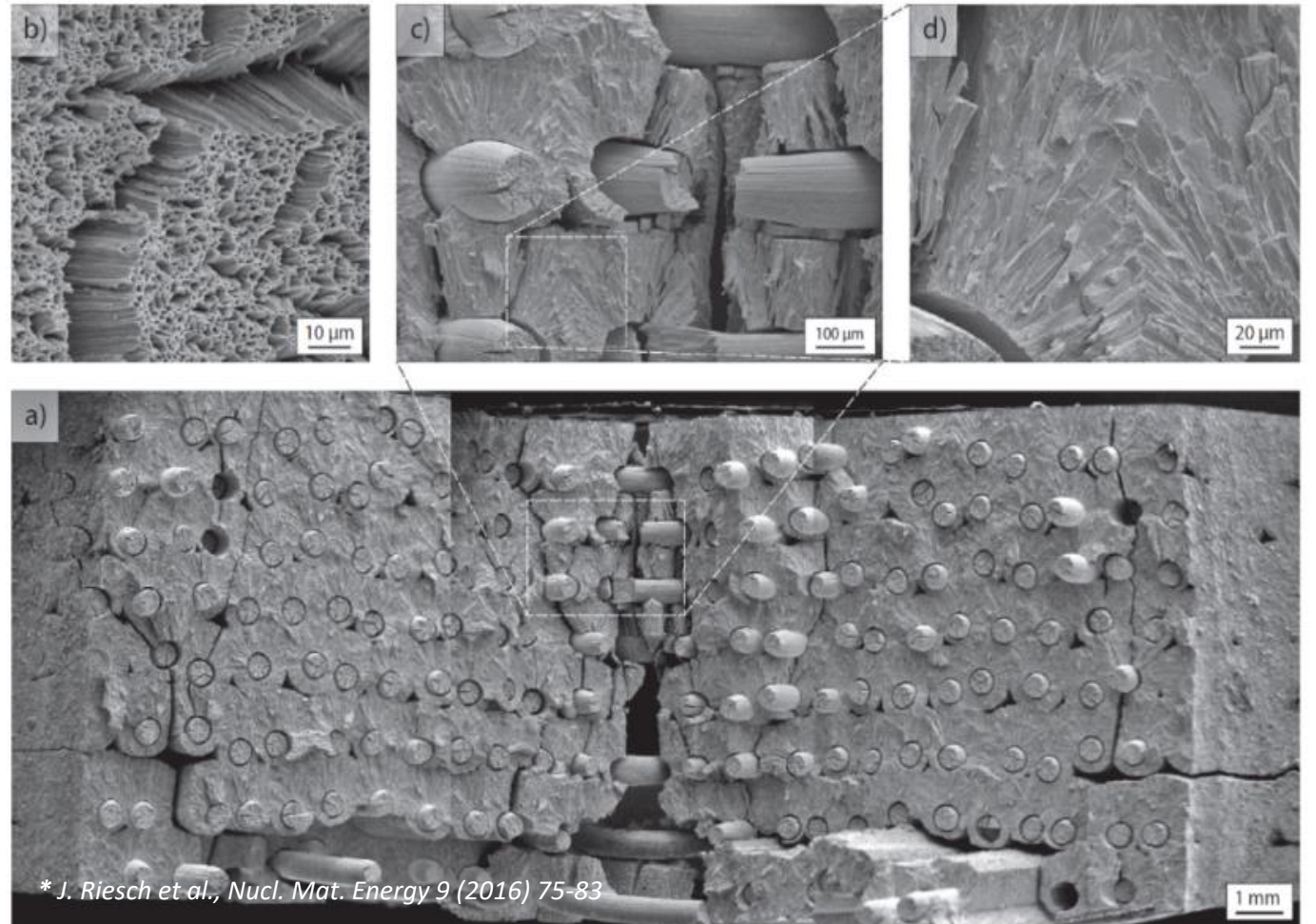
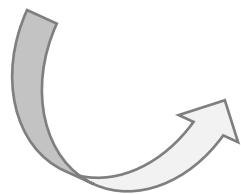
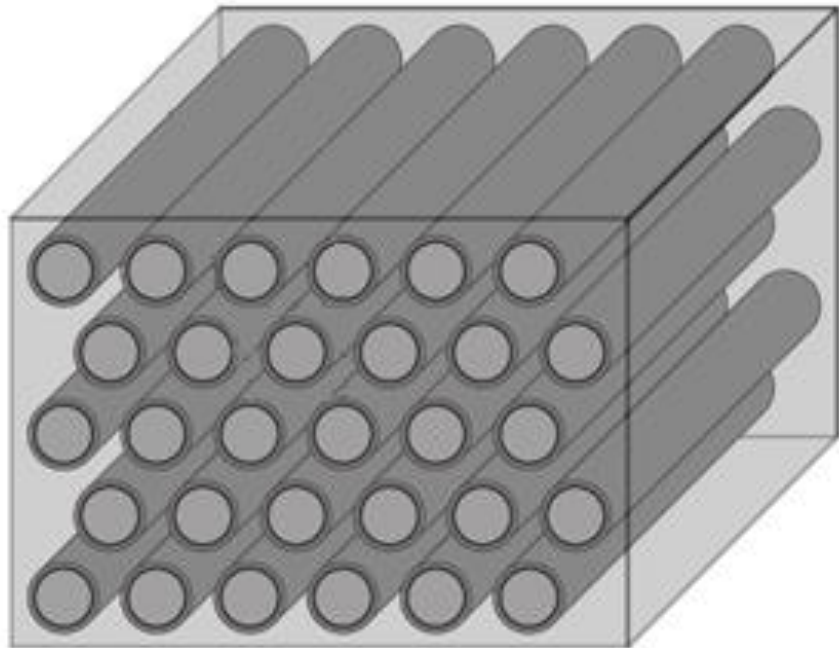
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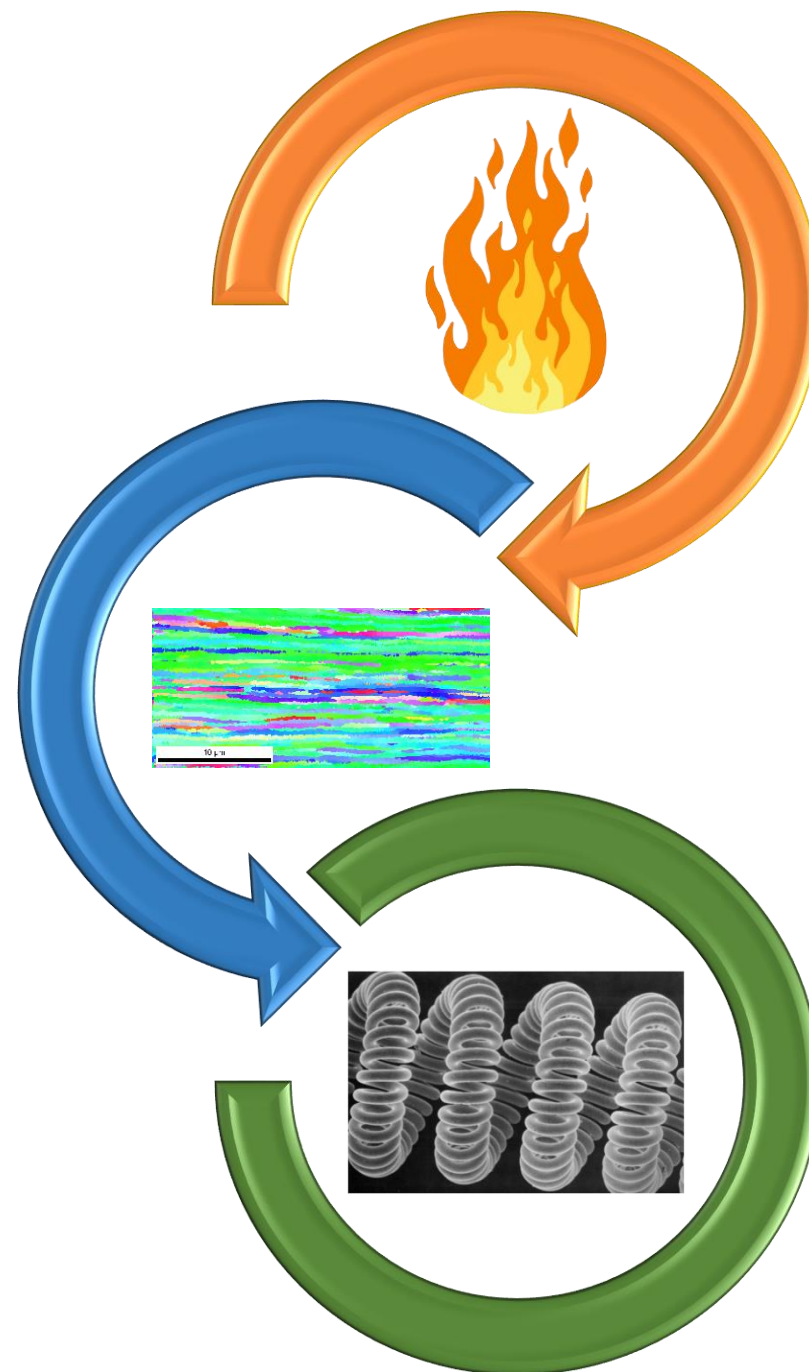
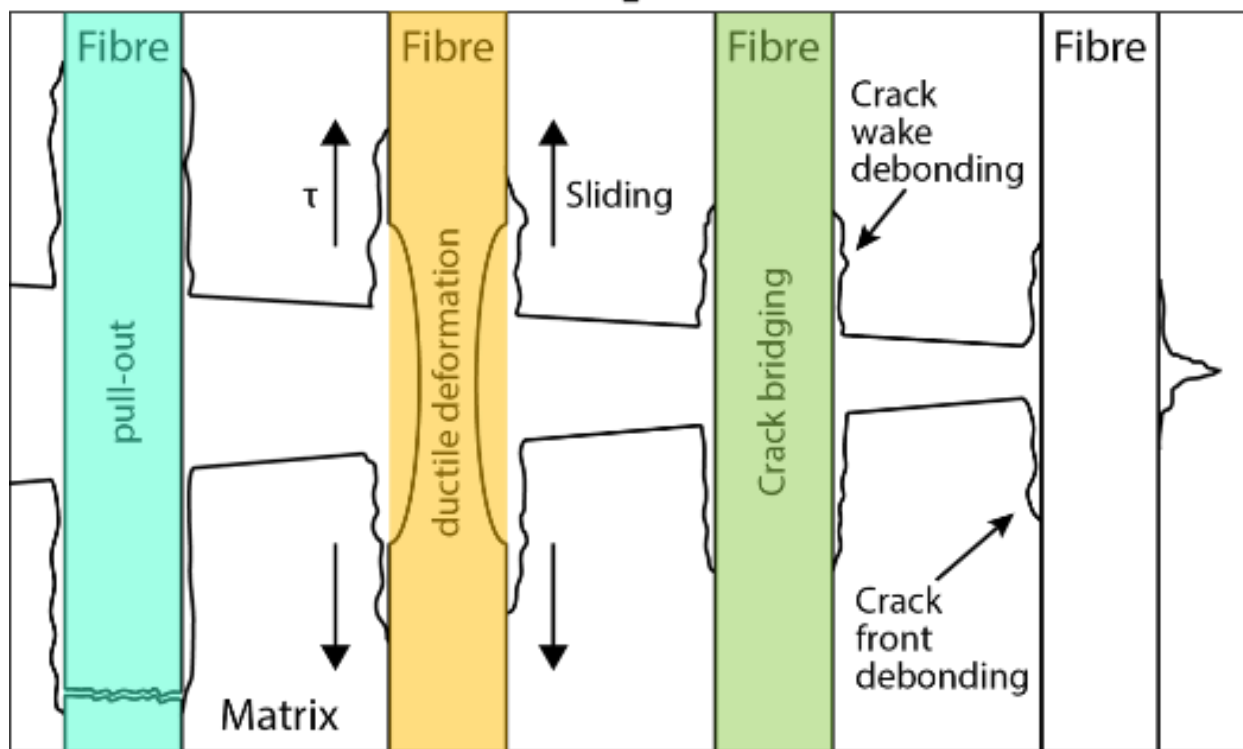


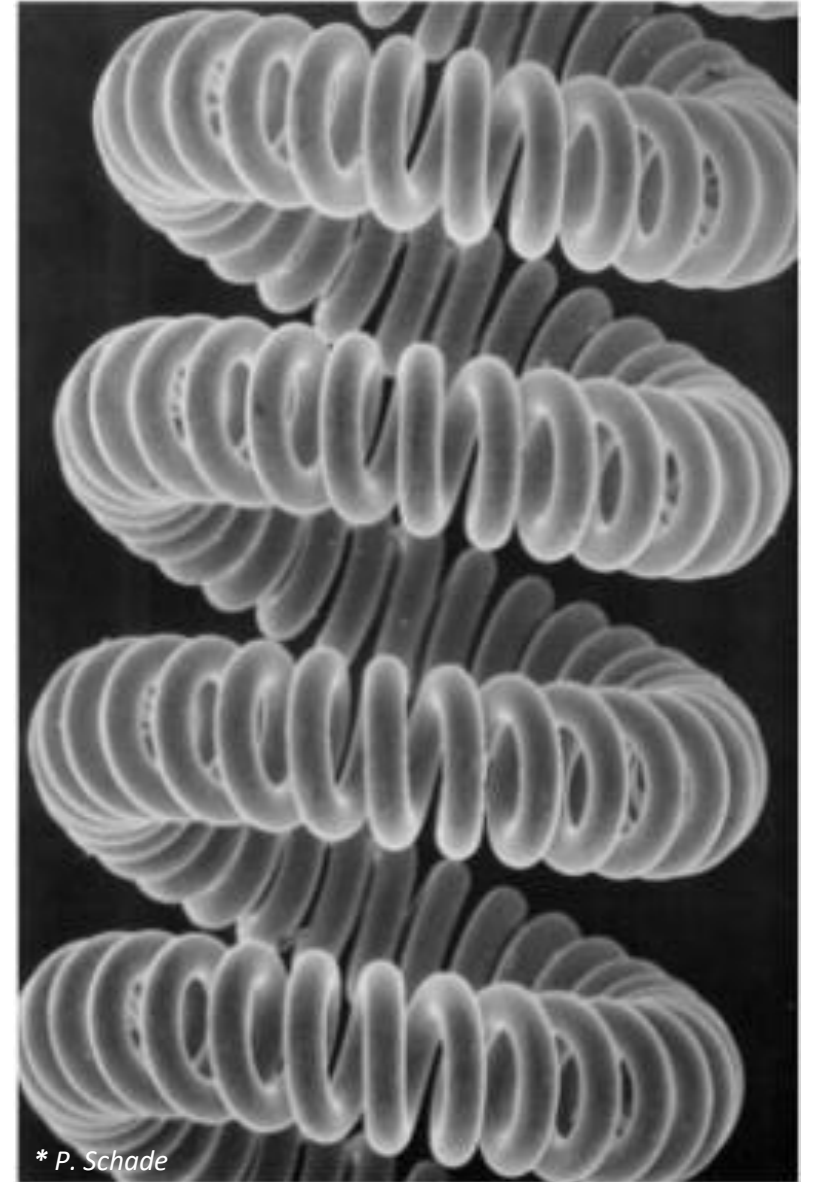
$T_m = 3422^\circ\text{C}$

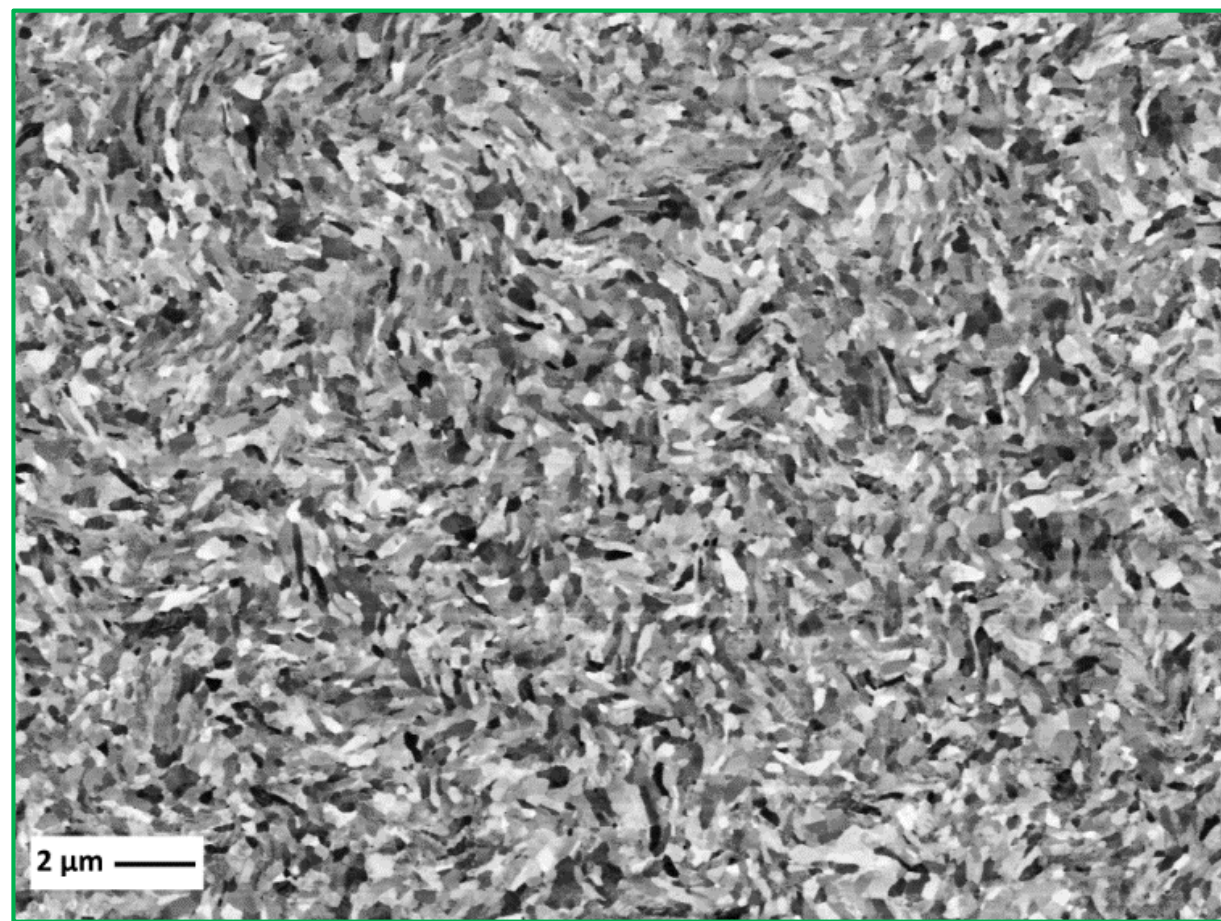
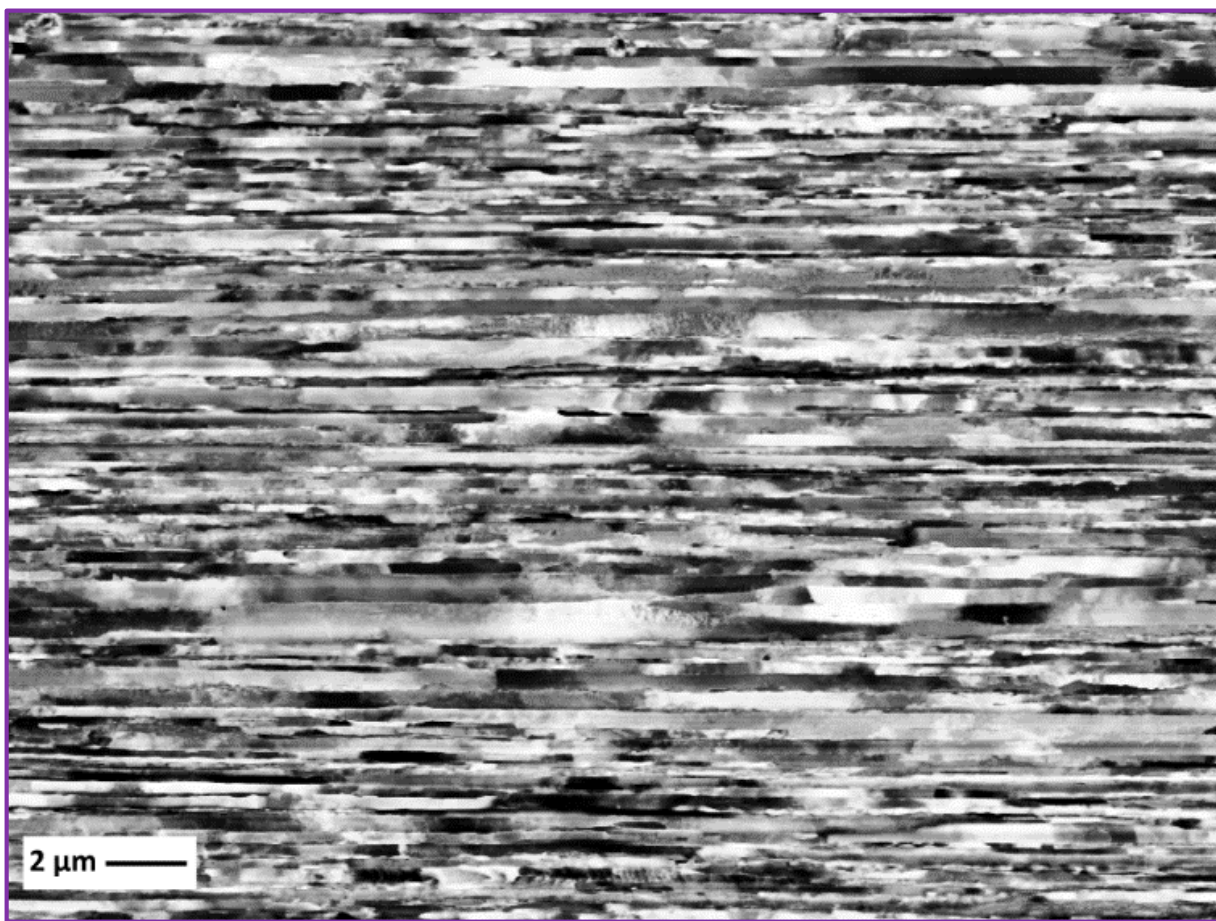
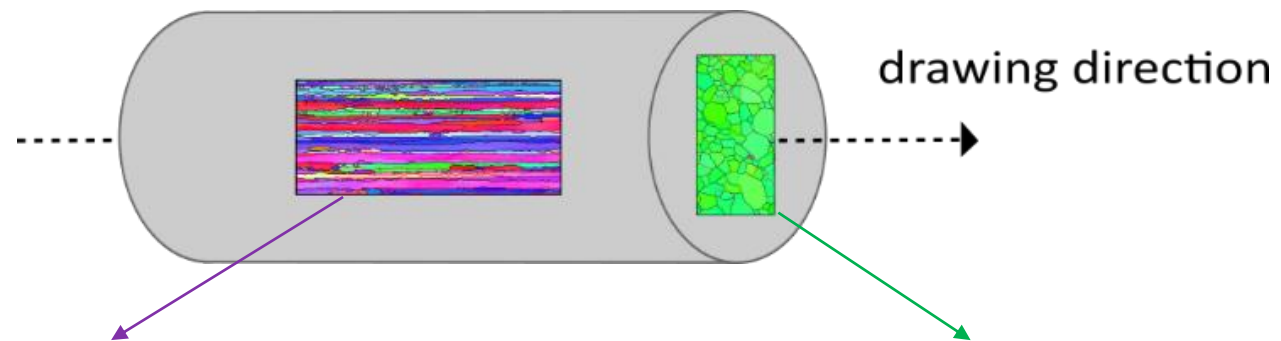


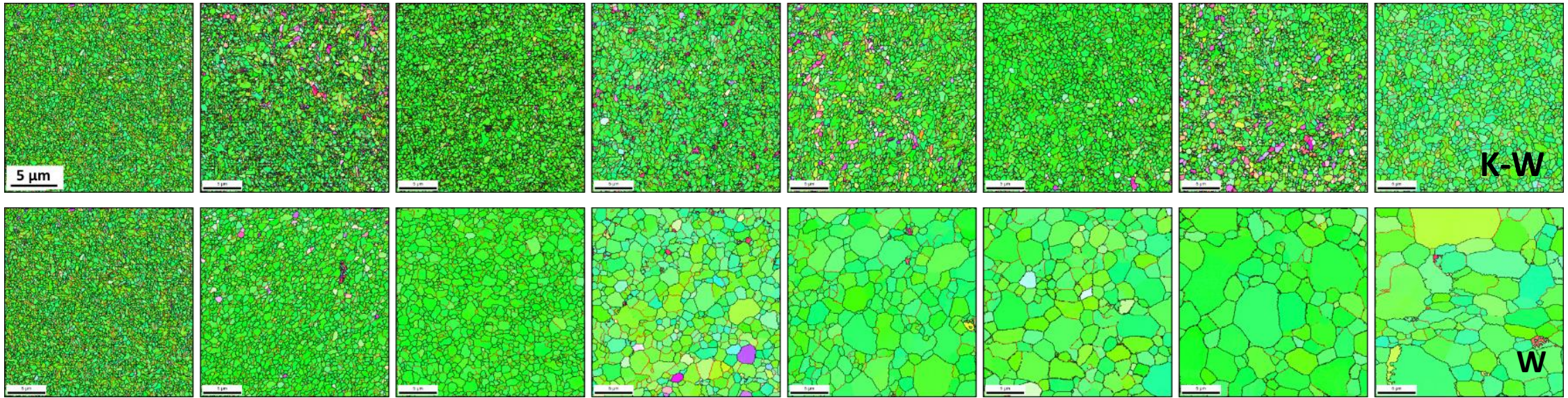












as received

900°C

1100°C

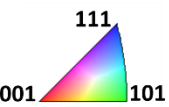
1200°C

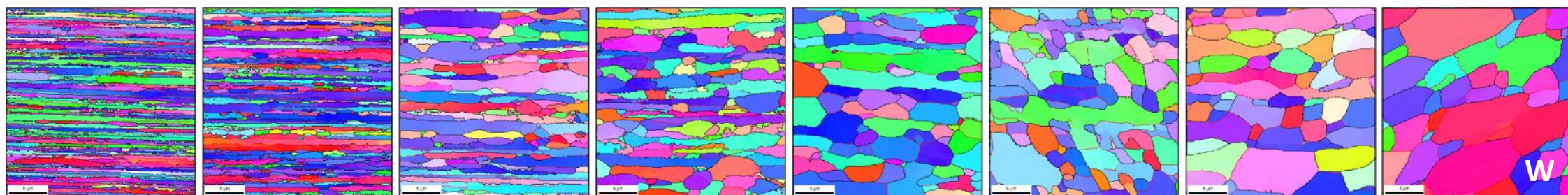
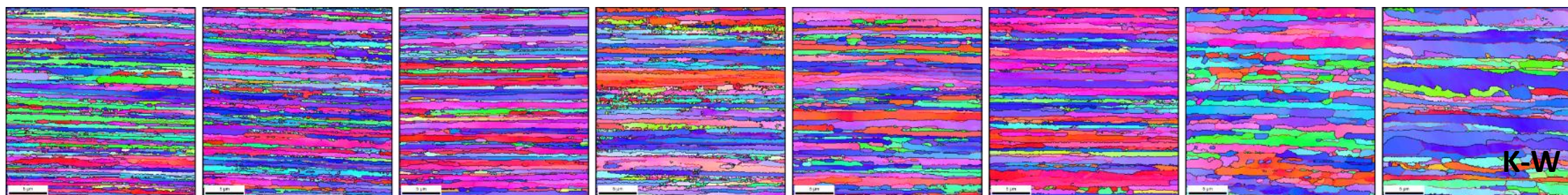
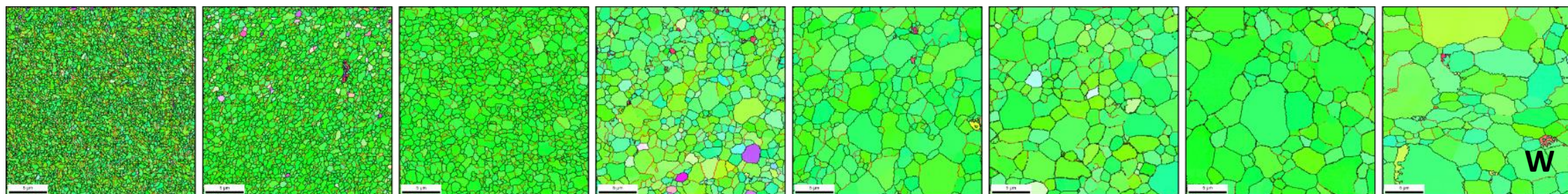
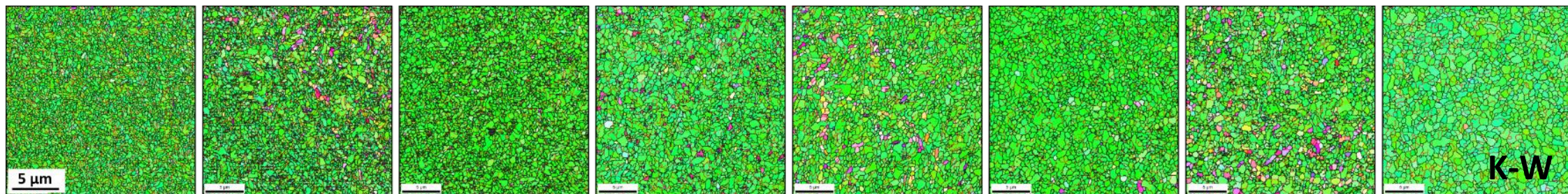
1300°C

1400°C

1500°C

1600°C





as received

900°C

1100°C

1200°C

1300°C

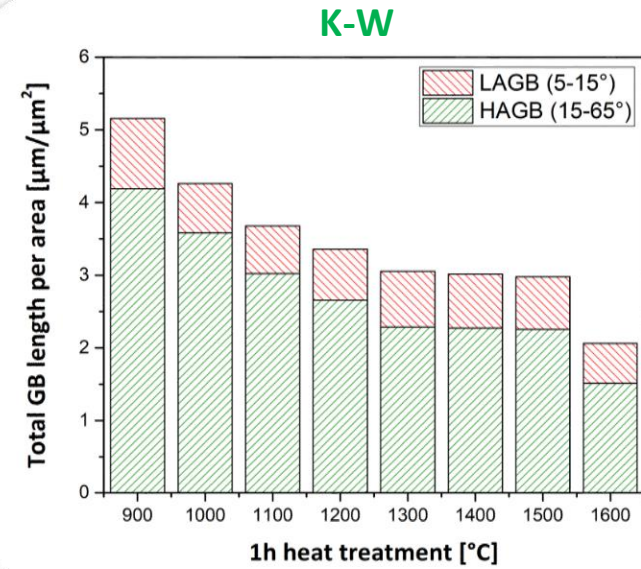
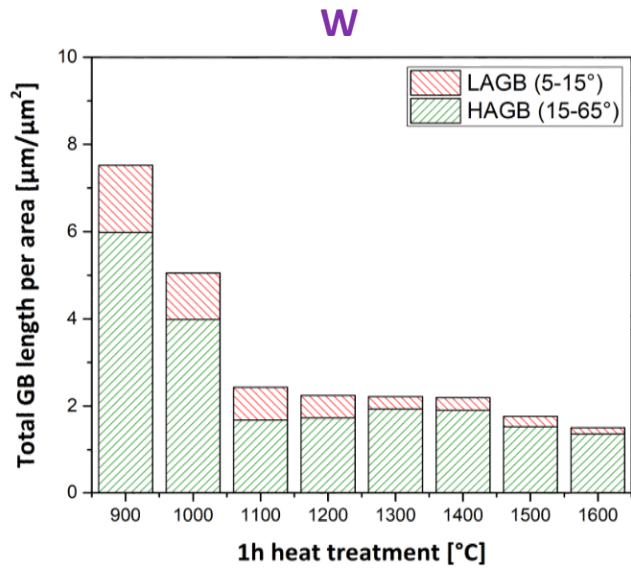
1400°C

1500°C

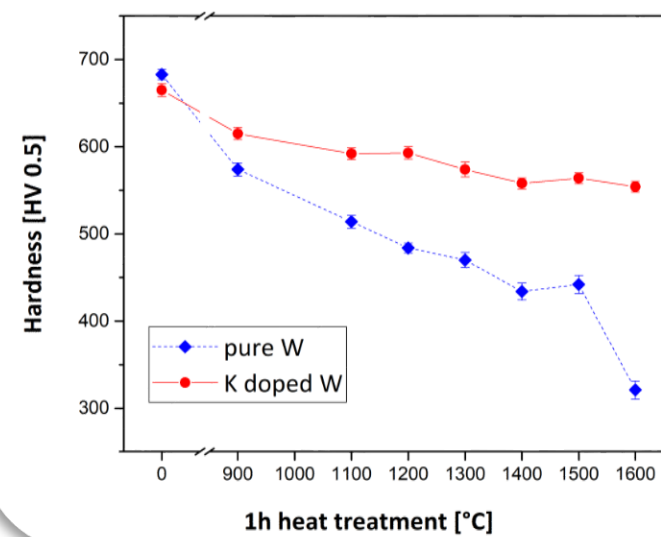
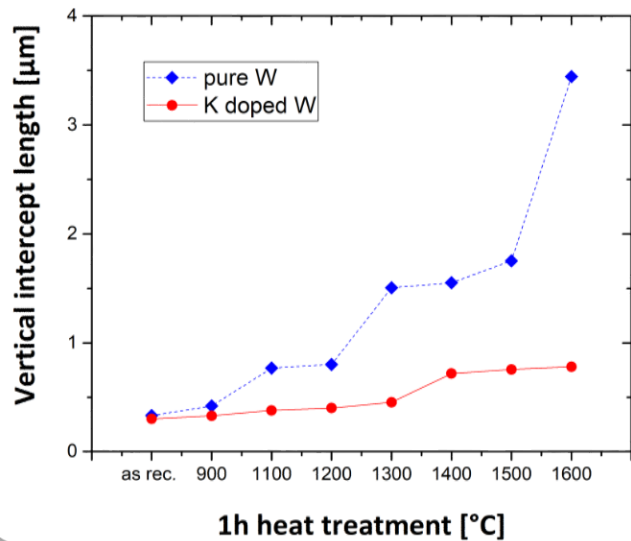
1600°C



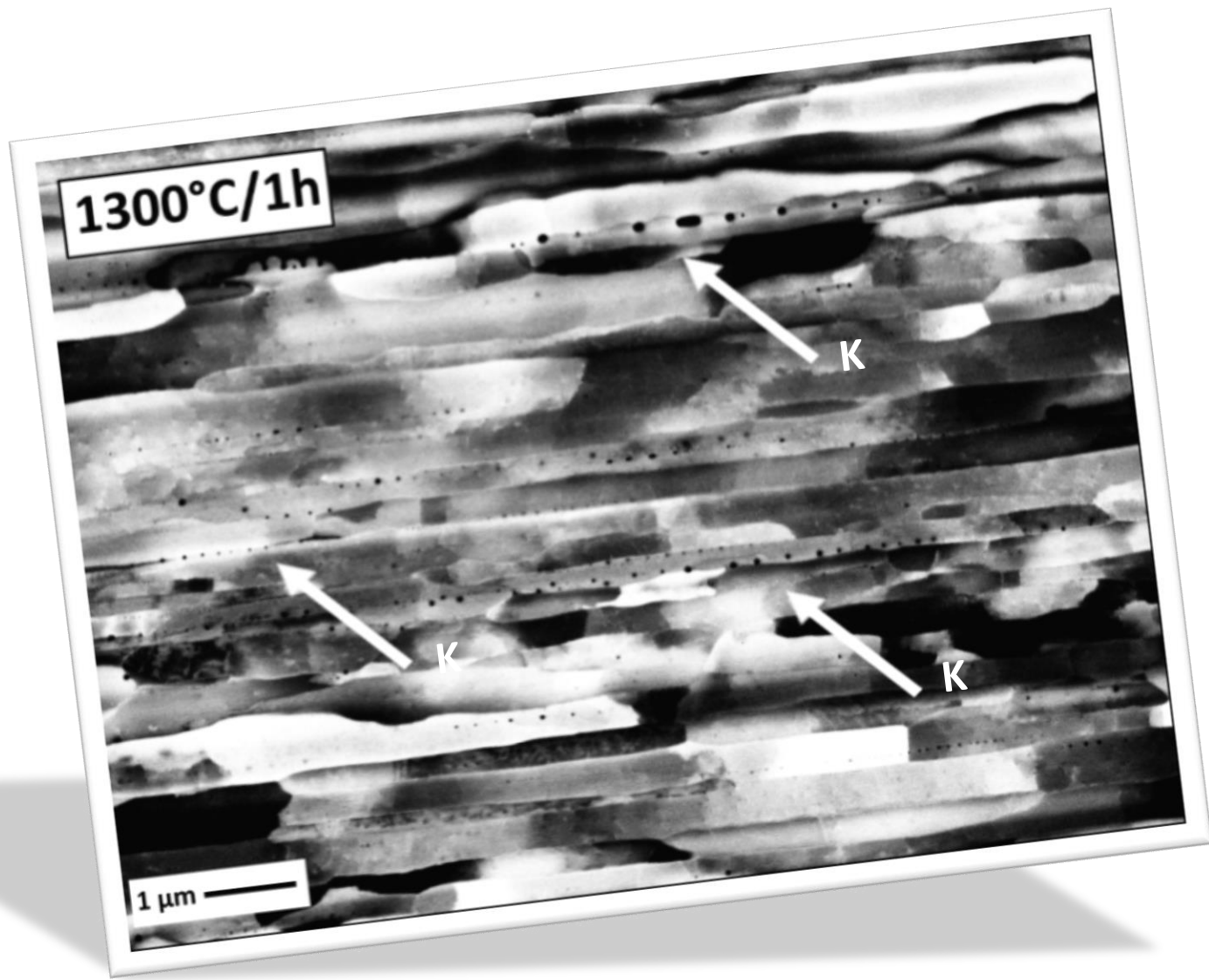
Grain boundaries

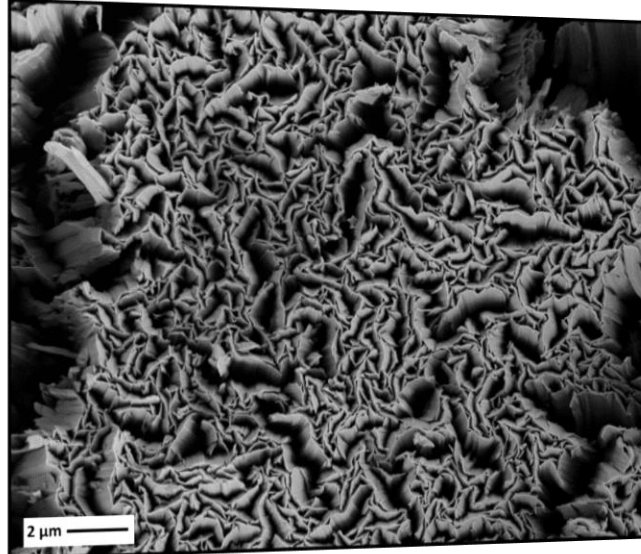
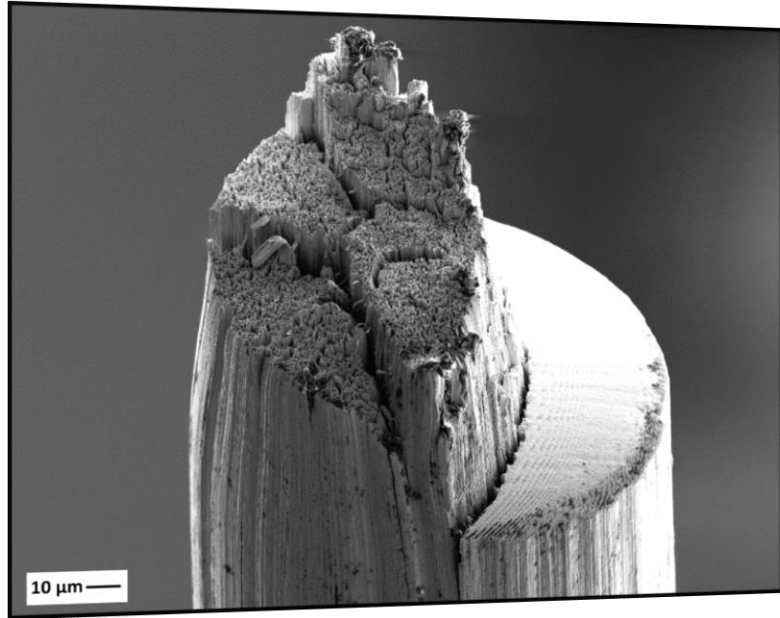


Grain size



Vickers hardness

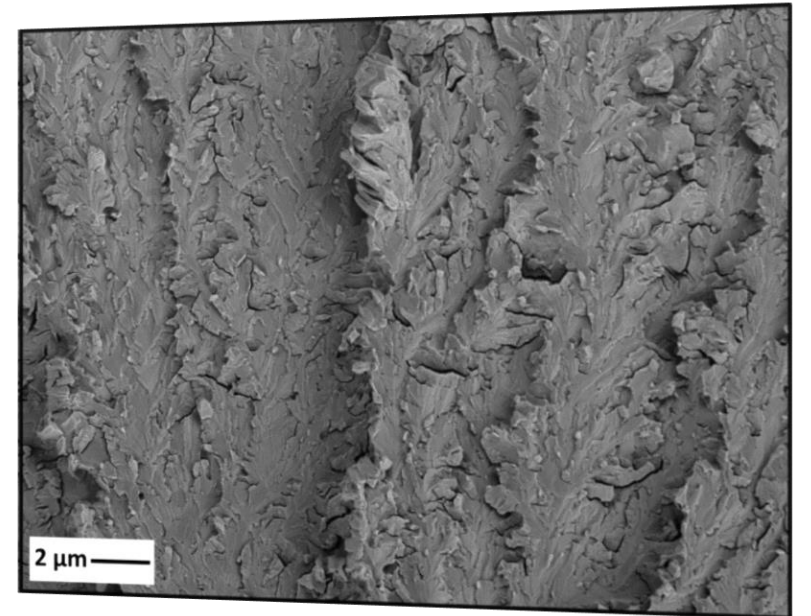
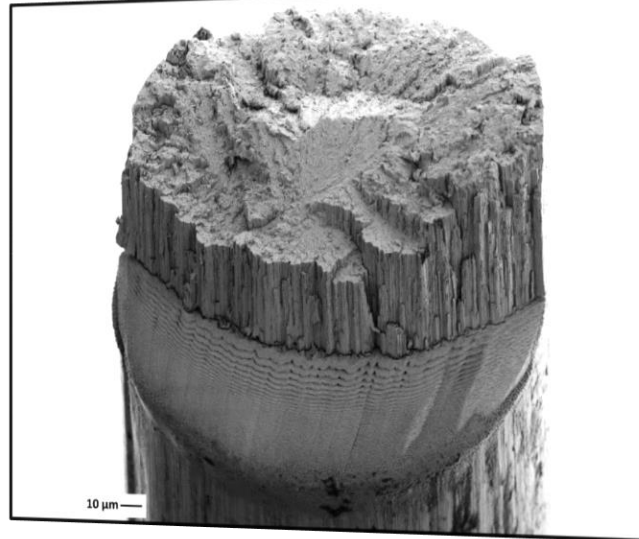




ductile

brittle

DBTT ~ RT !



as received

