



Zoz  
Group

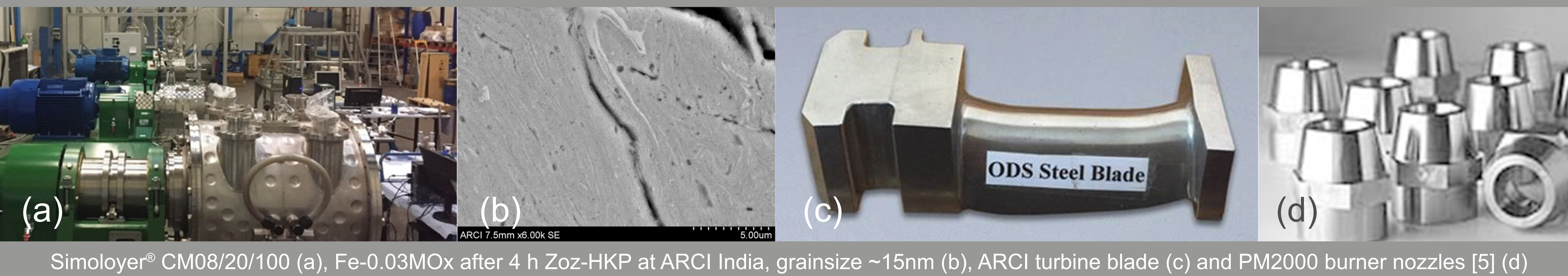


# Zoz launching PM2000

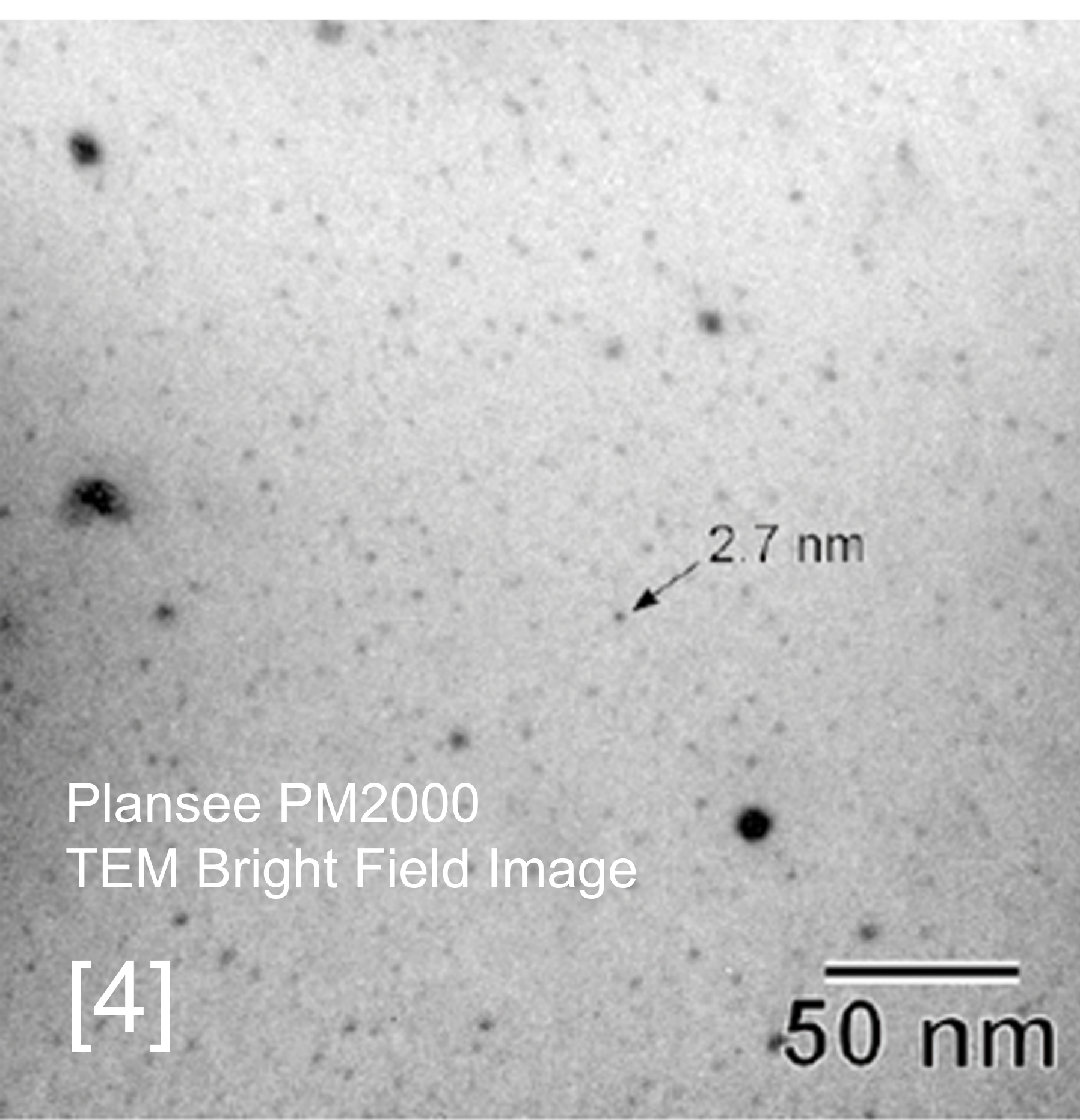
revitalization of Plansee's ODS-19YAT

## ODS-20YAI (PM2017-AM) + NFA-14YWT (PM2018)

high-temp. & corrosion-resistant/irradiation-tolerant ODS/NFA-steel/powder from the shelf

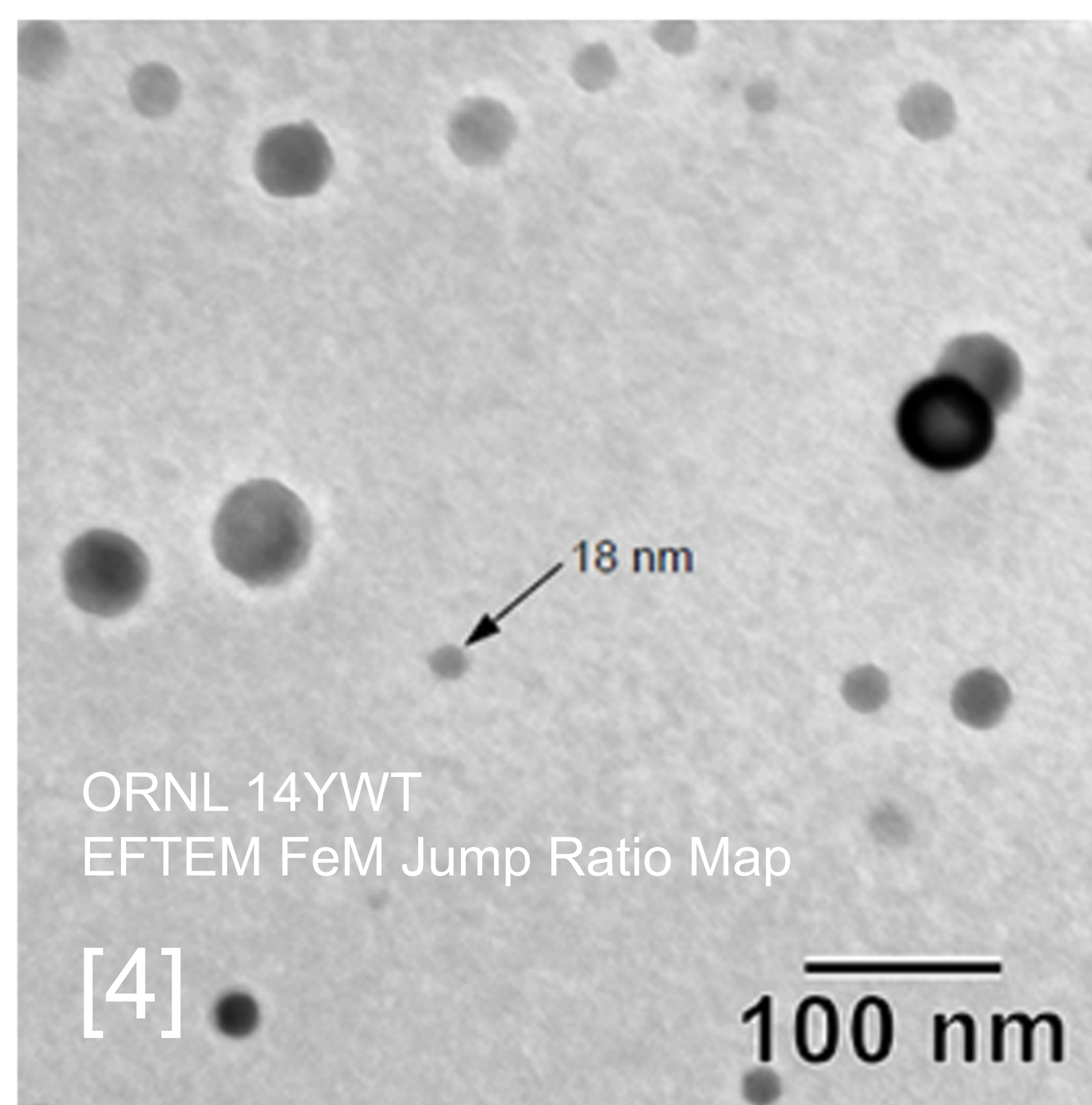


Simoloyer® CM08/20/100 (a), Fe-0.03MOx after 4 h Zoz-HKP at ARCI India, grainsize ~15nm (b), ARCI turbine blade (c) and PM2000 burner nozzles [5] (d)



Plansee PM2000  
TEM Bright Field Image

[4]



ORNL 14YWT  
EFTM FeM Jump Ratio Map

[4]

14YWT contains significantly higher number density and smaller size of Ti-, Y-, and O-rich nanoclusters compared to YAG oxide particles in PM2000 (and other commercial ODS alloys) [4]

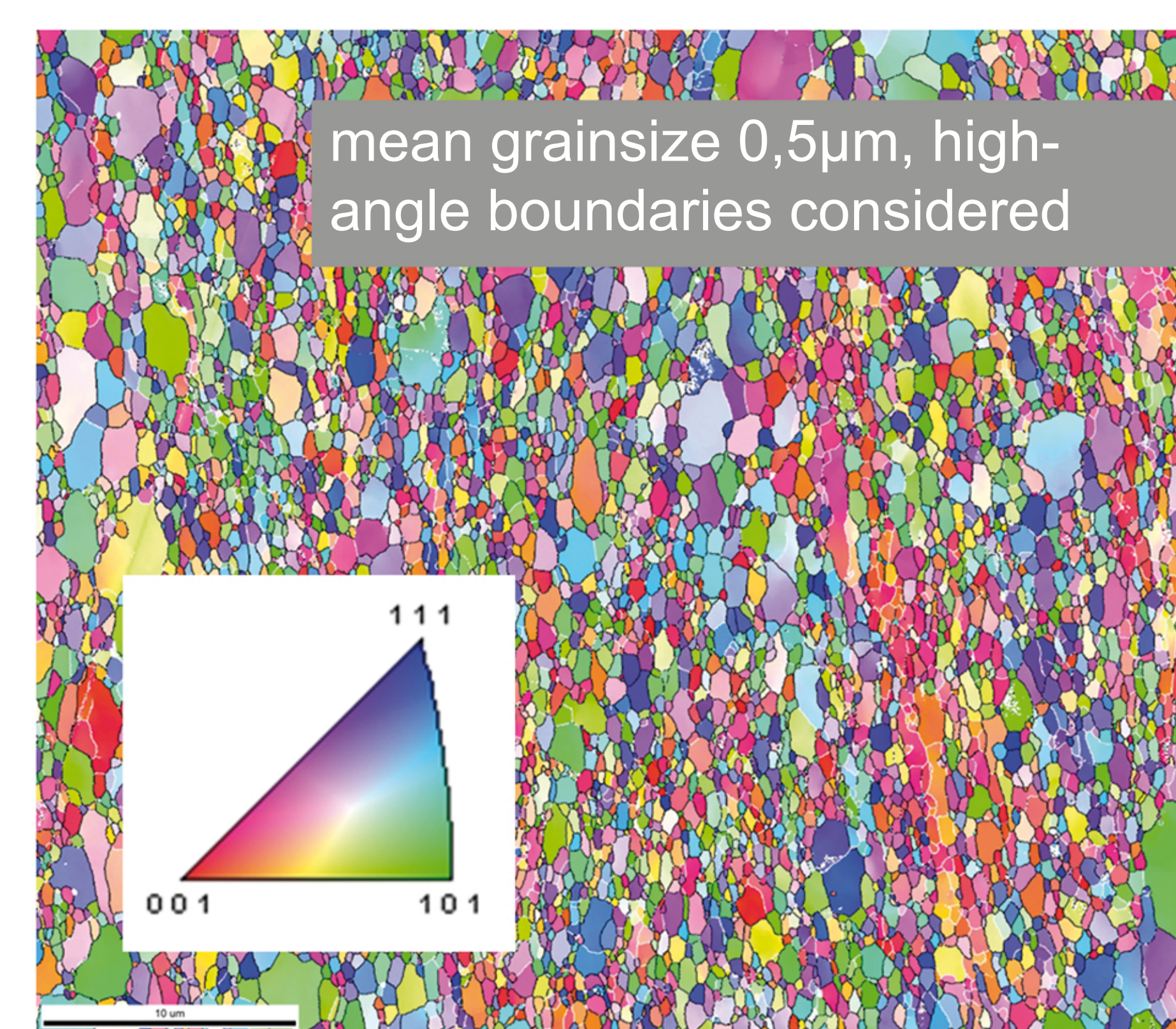
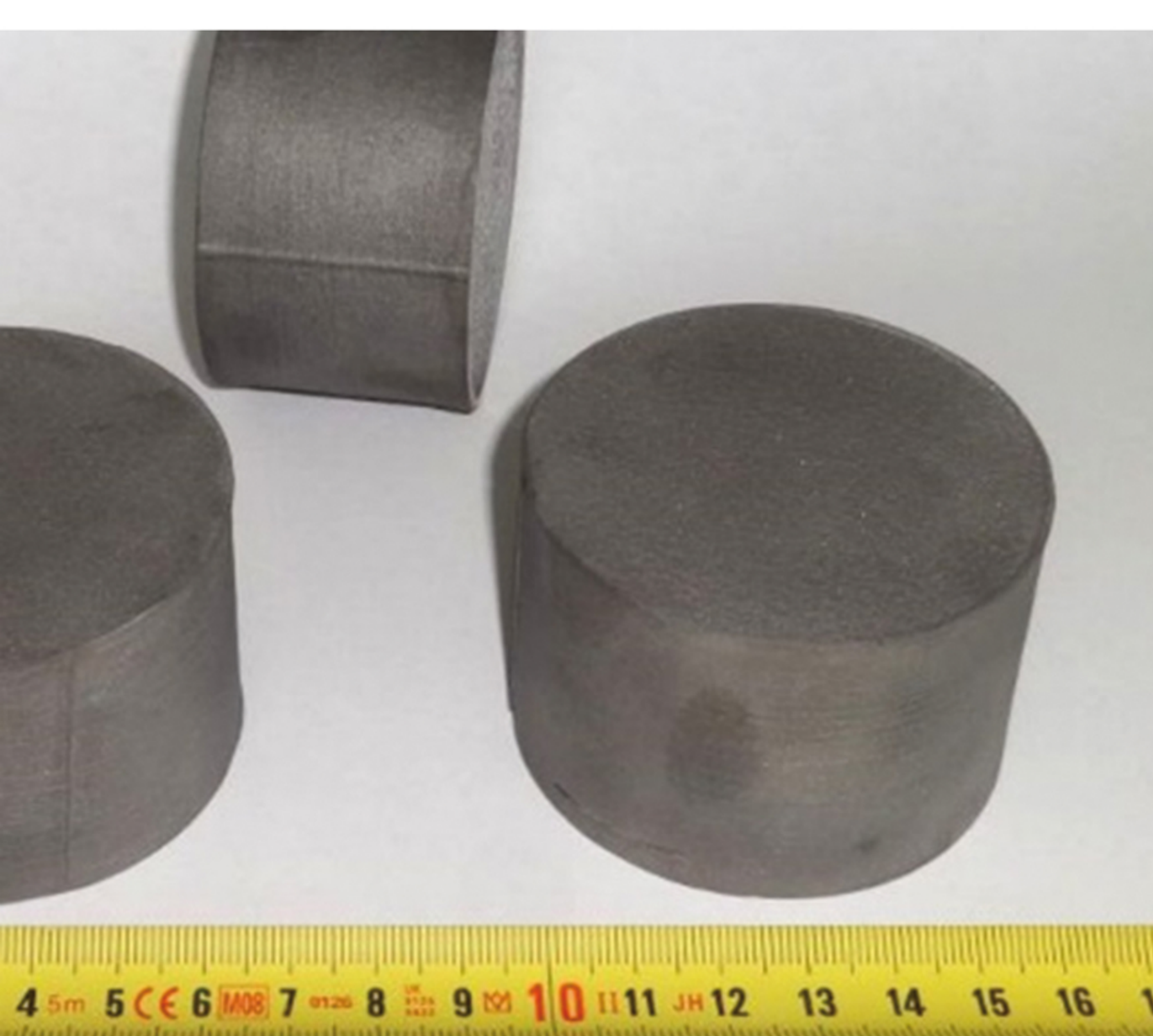
[4] D. T. Hoelzer, Oak Ridge National Laboratory: On the Development of Nanostructured Ferritic Alloys for Advanced Fuel Clad Applications in Nuclear Reactors, OZ-16, 9th International | 9th German-Japanese Symposium on Nanostructures (2016), Wenden, Germany, proc. vol. 9 p-no. V02, S02

[3] G. R. Odette, University of California Santa Barbara: On the Development and Characterization of a Larger Best Practice Heat of a 14YWT Nanostructured Ferritic Alloy FCRD NFA-1

[7] R. DiDomizio, GE Global Research: The Effects of Processing on Precipitate Distribution and Tensile Properties of a Nanostructured Ferritic Alloy (NFA) OZ-Workshop 2015 at UCB, Dept. of Nuclear Engineering, Berkeley (2015-05-15)

brand	chem. composition (starting mat.)	ID	origin	t. b. on shelf
<b>PM2000</b>	Fe-19Cr-5.5Al-0.5Ti-0.5Y2O3	<b>19YAT</b>	ODS-PM	fine-grain/HIP only, D40xL250mm
<b>PM2017</b>	Fe-20Cr-5.5Al-0.5Y2O3	<b>20YAI</b>	ODS-RR	powder only (AM, ALM, MIM)
<b>PM2018</b>	Fe-14Cr-3W-0.4Ti-0.25Y2O3	<b>14YWT</b>	NFA-GE	powder only, sheets as of 2023

chemical (basic) compositions for on shelf (a) powder and bulk (b) bulk only (c) powder and bulk

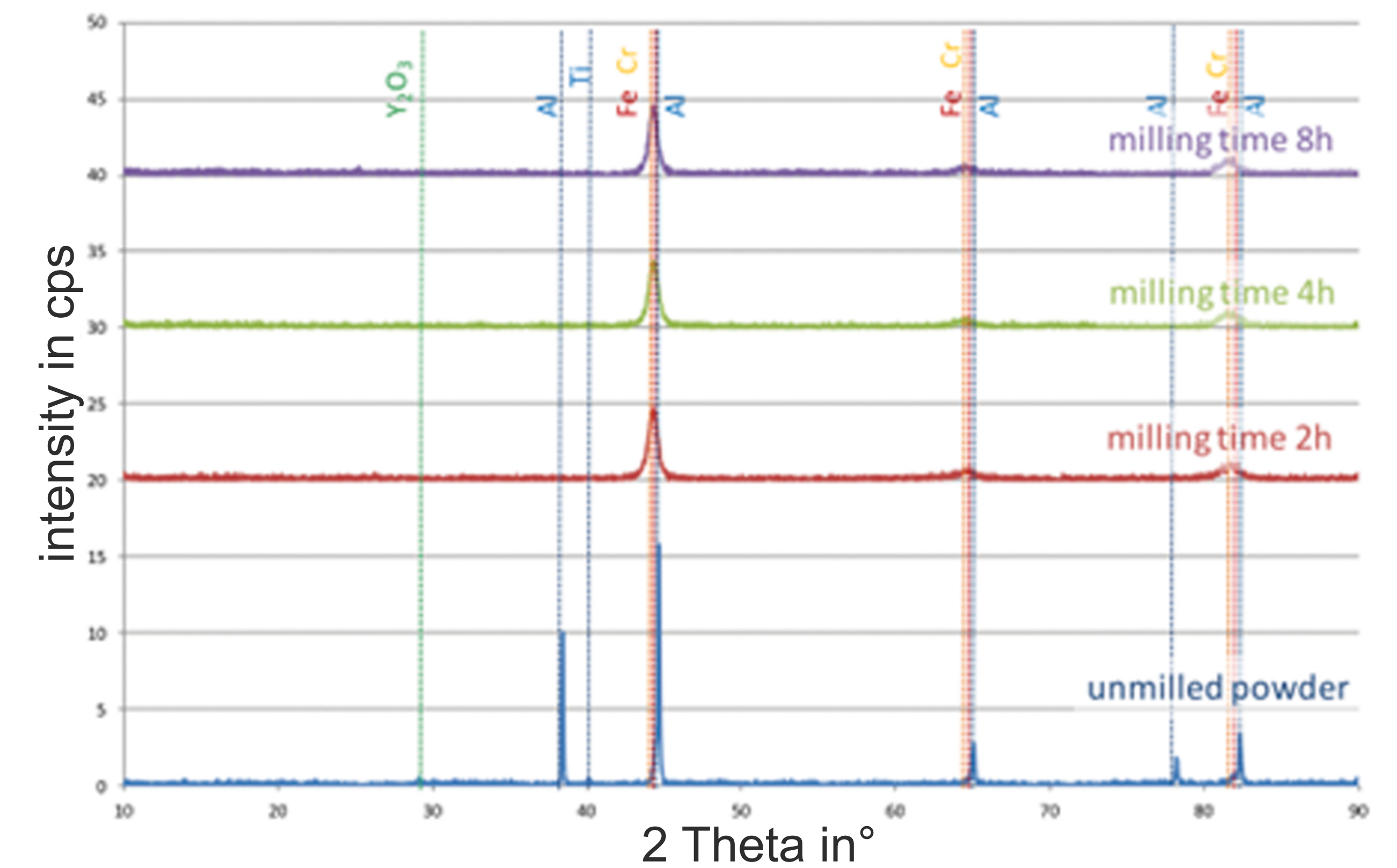
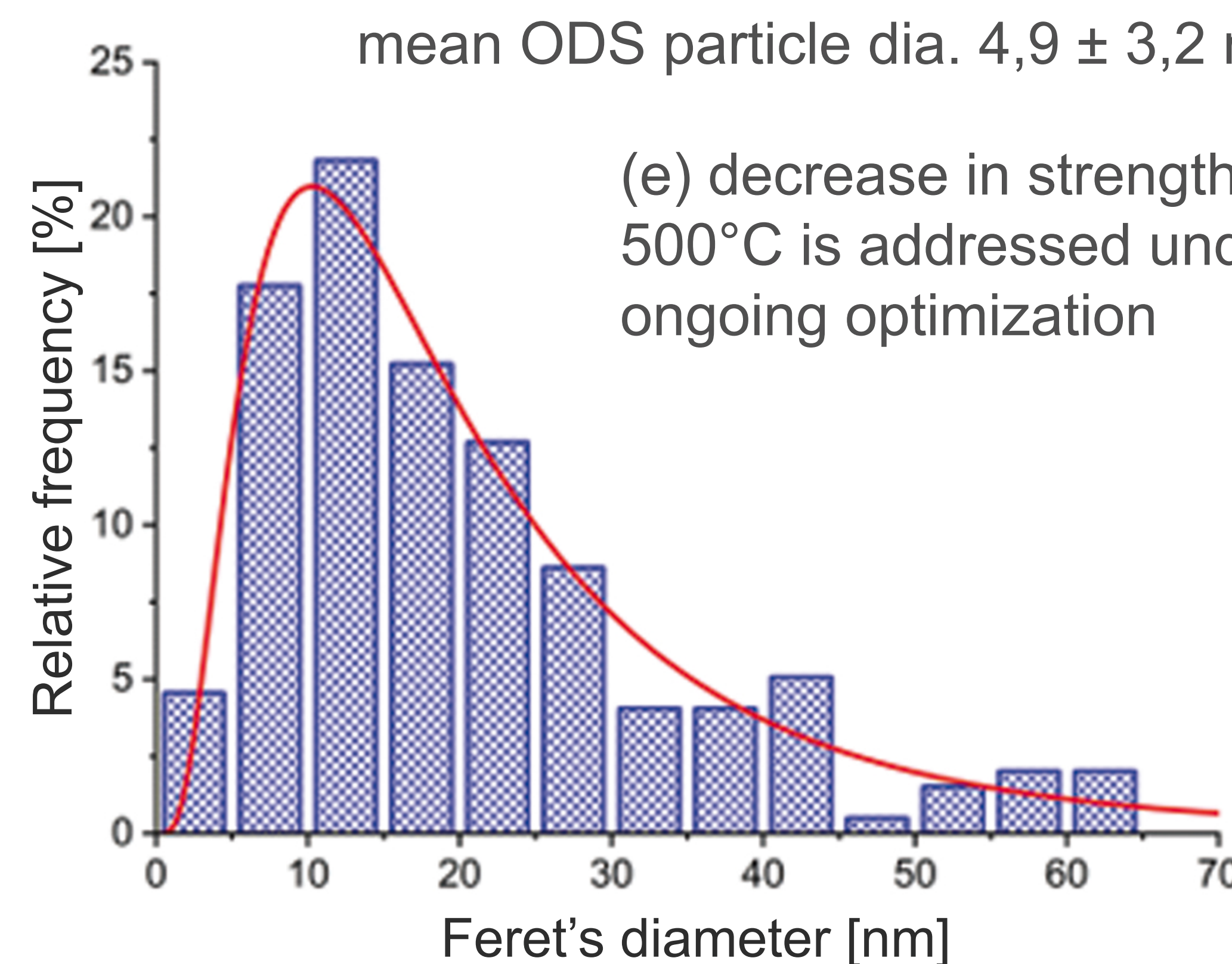
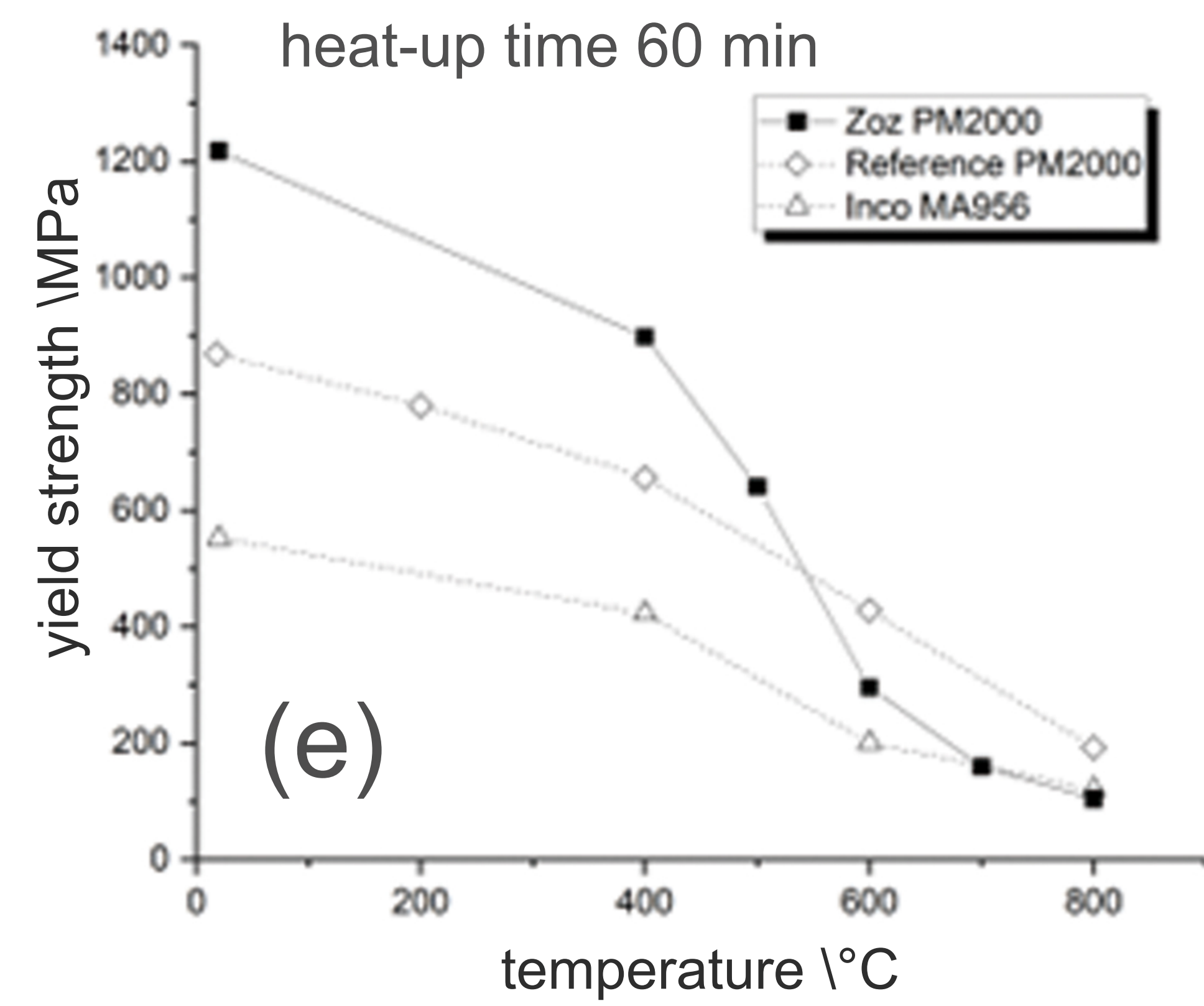


M. Rieth, H. Zoz,  
E. Simondon, H. U. Benz

A cooperative initiative in materials technology: Increasing the Technical Readiness Level of innovative oxide dispersion strengthened materials (2020)



images  
M. Duerschnebel (KIT)



V727-05c-2h-vac, SPS-sintered, forging press, deformation 3x 5mm = 15mm, 30 cycles/min, 2s for ea. 5mm deformation step, 1.100°C under air.

reduction of processing time possible by use of HKP Simoloyer® → fully alloyed after only 2 hours (note: usually 20-40 hours are required)



P2H® | P2G2F® | Hydrolium® | H2Tank2Go® | Zentallium® | ZoLiBat® | Simoloyer® are registered trademarks of Zoz Group, Taraxagum™ is so of Continental AG

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Current Status of ODS Alloys - dedicated to Professor Shigeharu Ukai

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