

Multi-scale microstructure analysis

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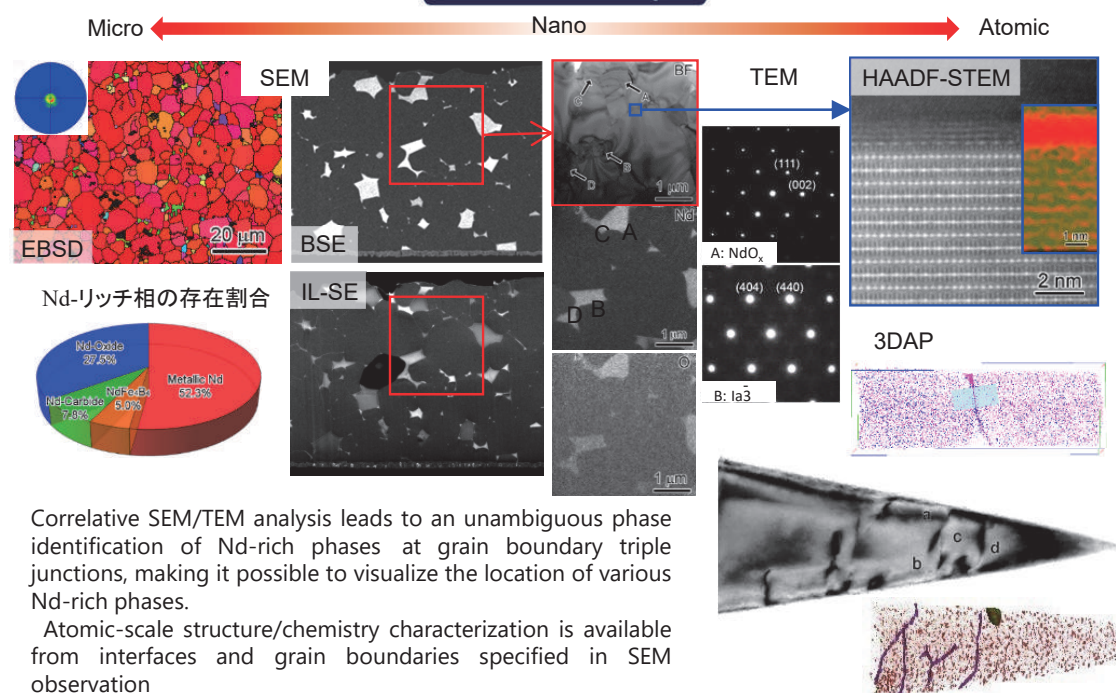
Background

- Microstructure / alloy design
- Clarification of structure-property relationship
- Multi-scale microstructure analysis via the use of SEM, TEM and 3D atom probe

Aim

- Visualization of the microstructure features by advanced microscopy techniques
- Clarification of structure-property relationship in Nd-Fe-B magnet
- Development of strong and formable wrought Mg alloy

Advanced Research Topics



Publications

- M.Z. Bian et al., Scripta Mater. 137 (2017) 151
- T.T. Sasaki, et al., Acta Mater. 115 (2016) 269-277
- T.T. Sasaki, et al., Acta Mater. 84 (2015) 506-514

Segregation of solute elements along dislocations can be visualized by correlative TEM/3DAP analysis.

Summary

- Multi-scale microstructure characterization
- Materials development based on the information obtained by the characterization
- Understanding of process-structure-property relationship

Research outcome

- Development of Dy-free Nd-Fe-B magnet for hybrid and electric vehicles.
- High strength and formable wrought Mg-alloy for transportation vehicles