

Research on structural materials at the **Chair of Physical Metallurgy** comprises the investigation of the **processing-structure-properties relationship** of **advanced steels, titanium alloys** and **Ni-based superalloys**. The unique selling point are the two three-dimensional atom probe probes. With this technique, the composition of the above-mentioned materials is analyzed down to the atomic level.



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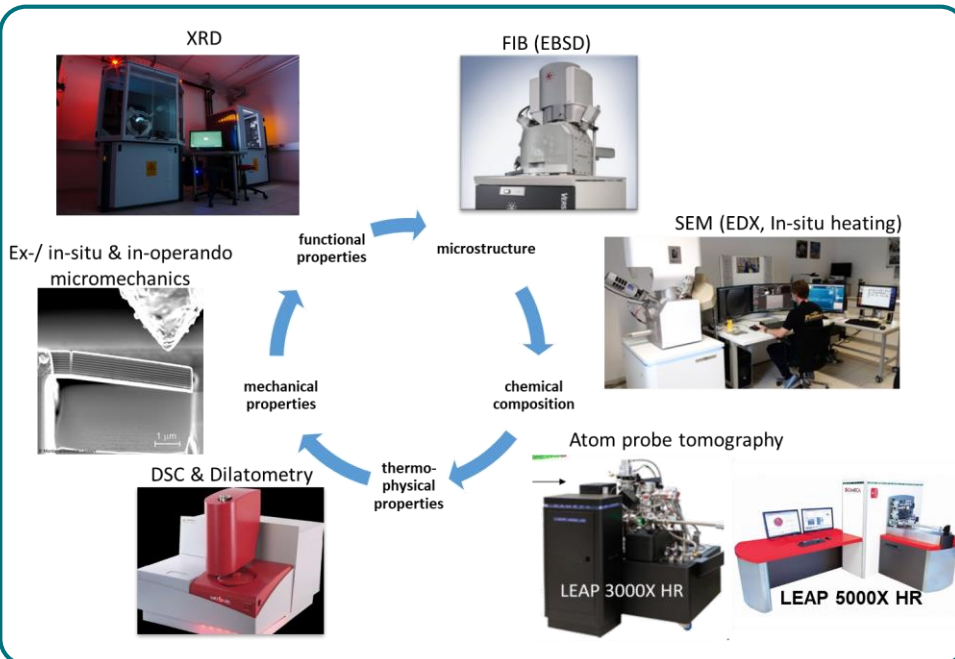


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## Scale bridging - materials characterization



## Research example: High resolution characterization of maraging steels

Atom probe tomography reveal that  $\beta$ -NiAl precipitates are already formed during continuous heating, but are no longer present at annealing temperatures. After full austenitization, this uneven distribution is compensated, before inherited lath boundaries from martensite (see high temperature-TEM image) trigger recrystallization of the austenitic microstructure.

