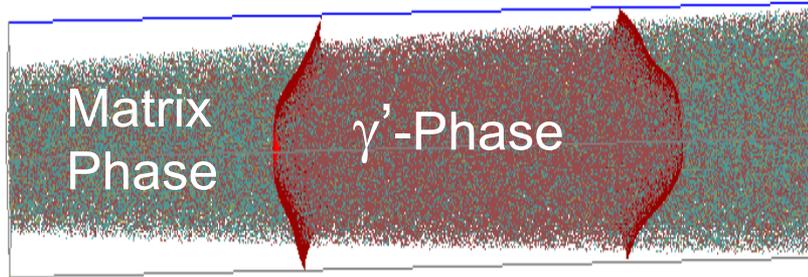


Effects of Ruthenium in Ni-base Superalloys

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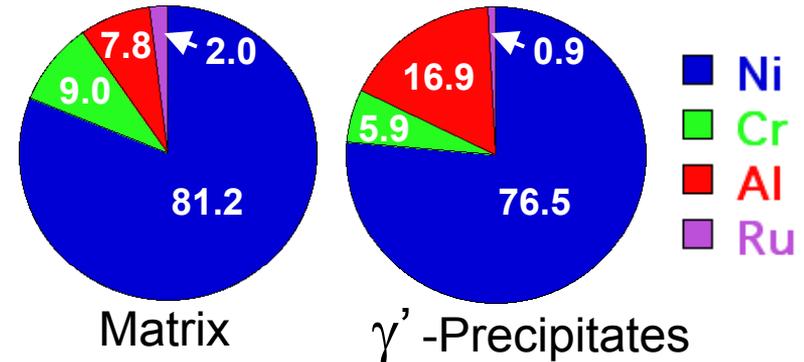
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3D Atom-probe Atom-by-Atom Reconstruction



Ni-8.5Cr-10Al-2Ru (at.%) 800°C 16h
Box size : 18nm x 17nm x 80 nm

Phase Compositions [at.%]



- ◆ **Ruthenium (Ru)** as a new alloying addition to **Ni-base superalloys** is expected to improve high-temperature creep resistance, i.e. the alloy can be used at higher temperatures.
- ◆ Potential for formation of detrimental so-called TCP phases is reduced with Ru addition.
- ◆ How **Ru redistributes** among matrix and γ' -precipitates is not clear, also its effect on redistribution of conventional alloying additions needs to be clarified.
- ◆ This transparency shows **atomic reconstruction**, **phase compositions**, and **partitioning ratios** for the elements in a Ni-Cr-Al-Ru alloy, **obtained by 3D atom probe microscopy**.

