

PHASE ANALYSIS OF HITPERMS

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SAMPLES



t r e a t m e n t

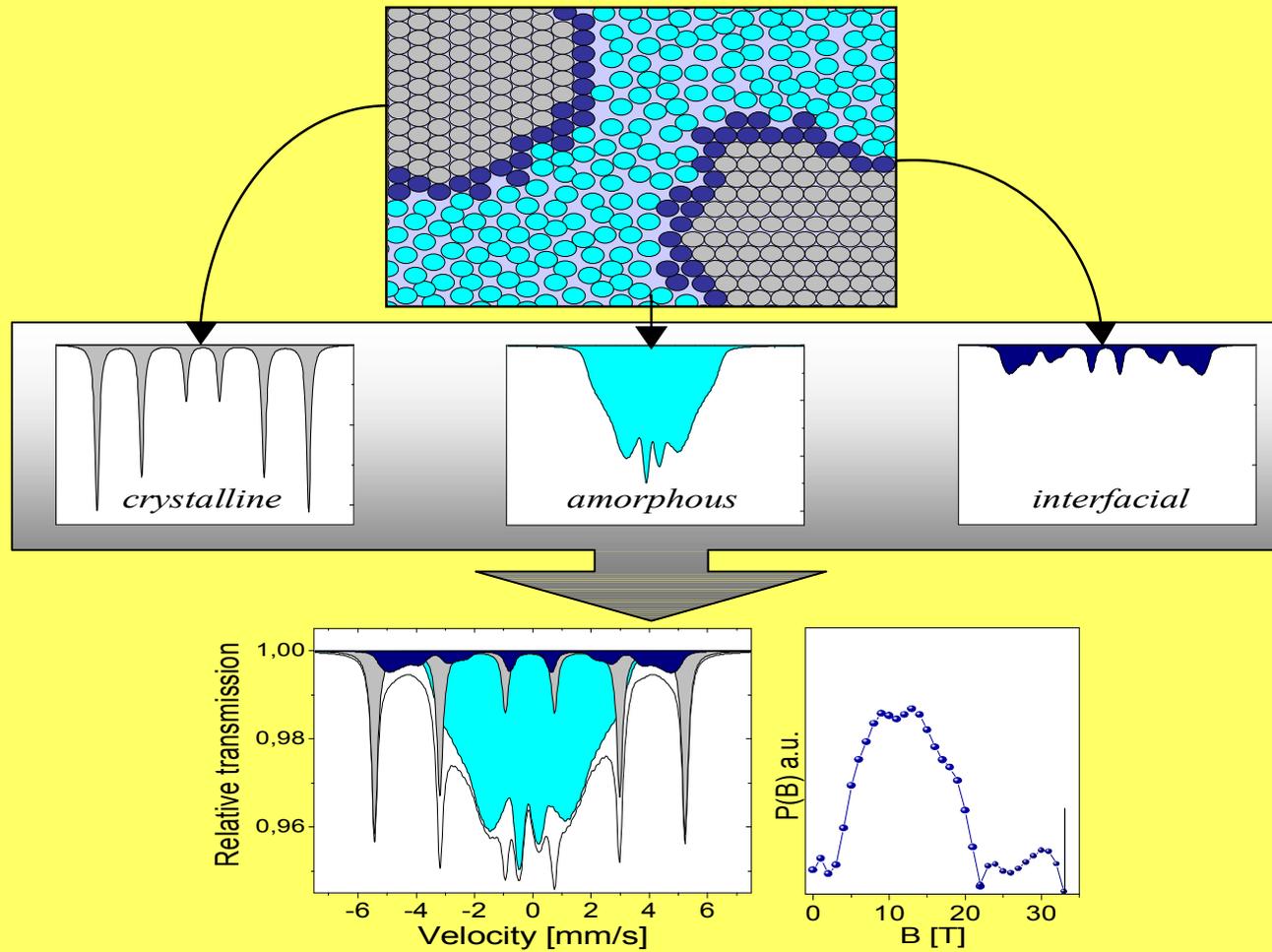


t e m p e r a t u r e : 540 °C and 580 °C (1 hour)

a t m o s p h e r e : v a c u u m a n d a r g o n

analytical method

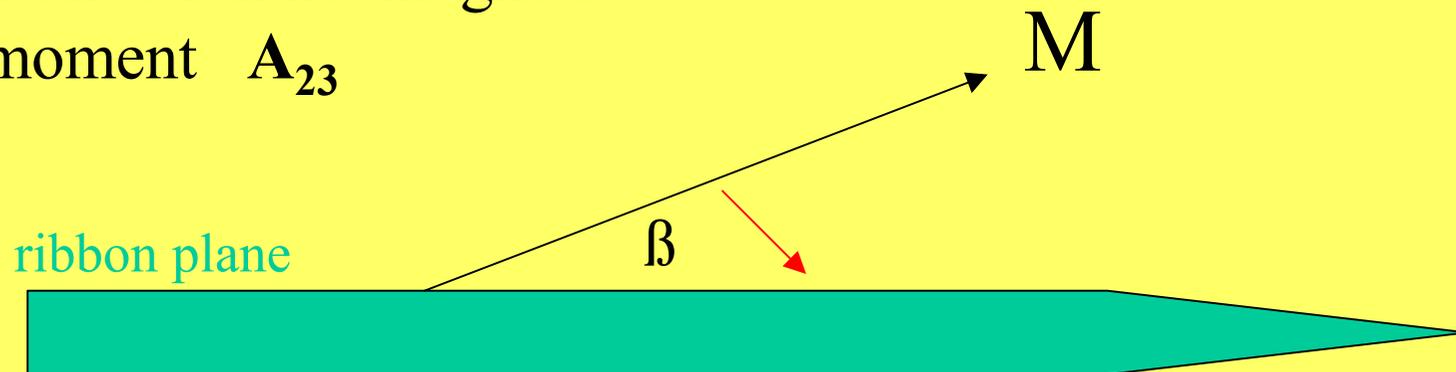
Mössbauer spectroscopy



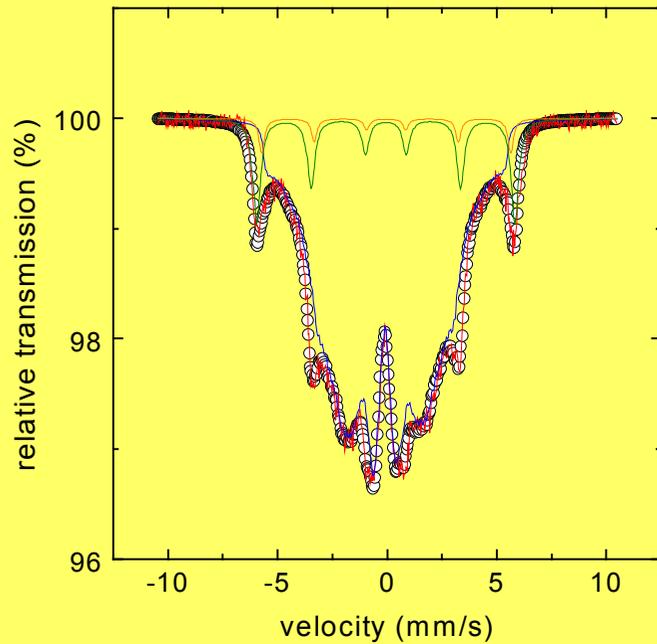
sensitive parameters

1. relative amount: **crystalline phase**
amorphous rest
interface

2. direction net magnetic moment A_{23}



vacuum



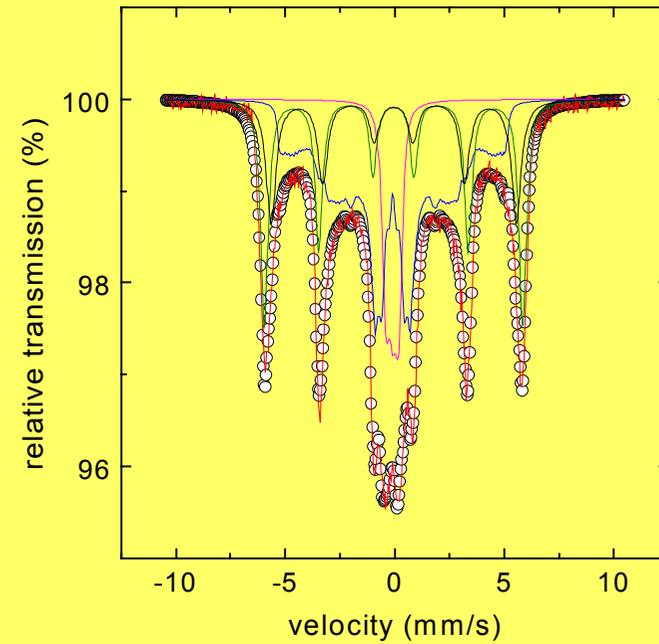
540°C

18 % cr

80% am

$A_{23}=2,5$

2% int



580°C

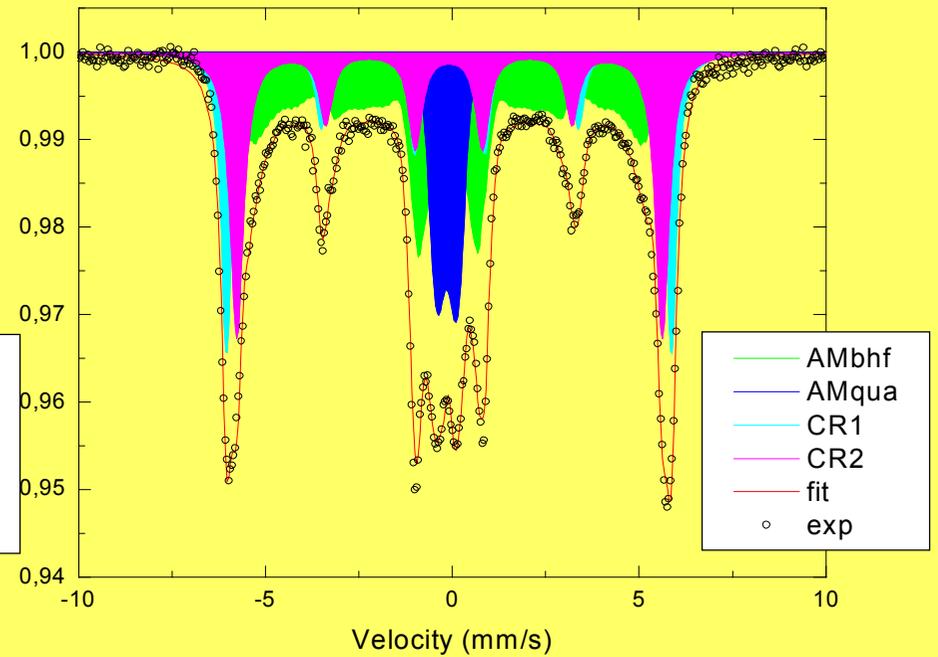
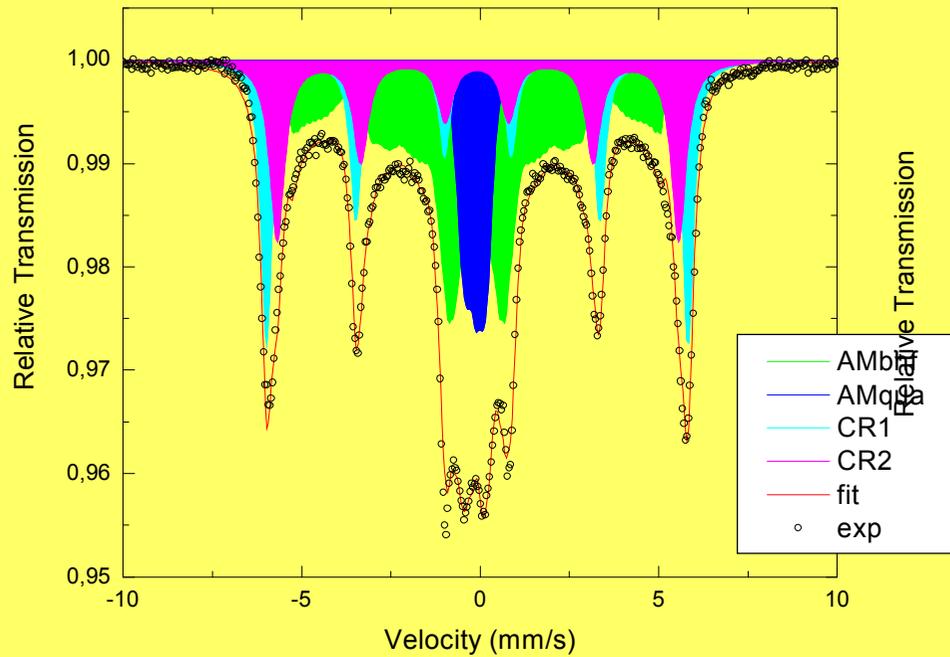
58 % cr

29% am

$A_{23}=2,4$

13%int

argon



540°C

63(18) cr

25(80) am

$A_{23}=1,7$ (2,5) 12(2) int

580°C

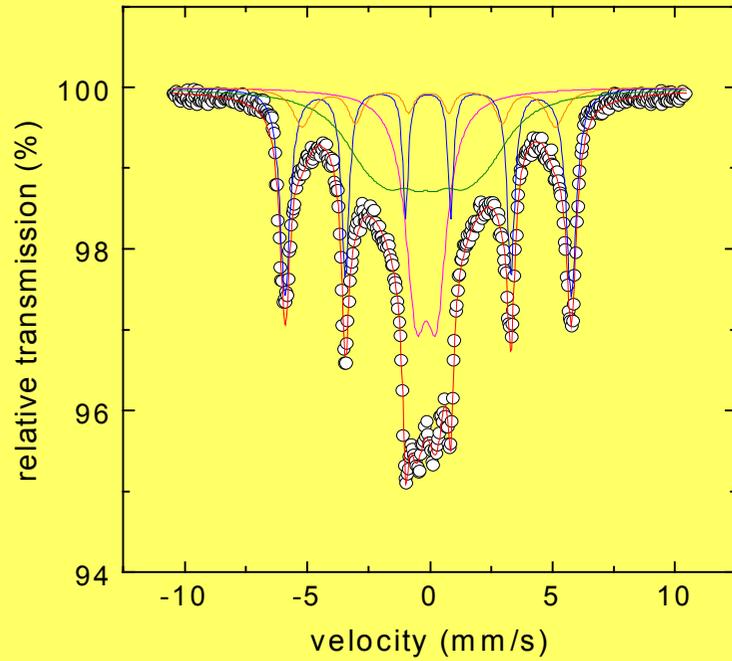
64(58) cr

23(29) am

$A_{23}=0,7$ (2.5) 13(13) int

() value in vacuum

vacuum



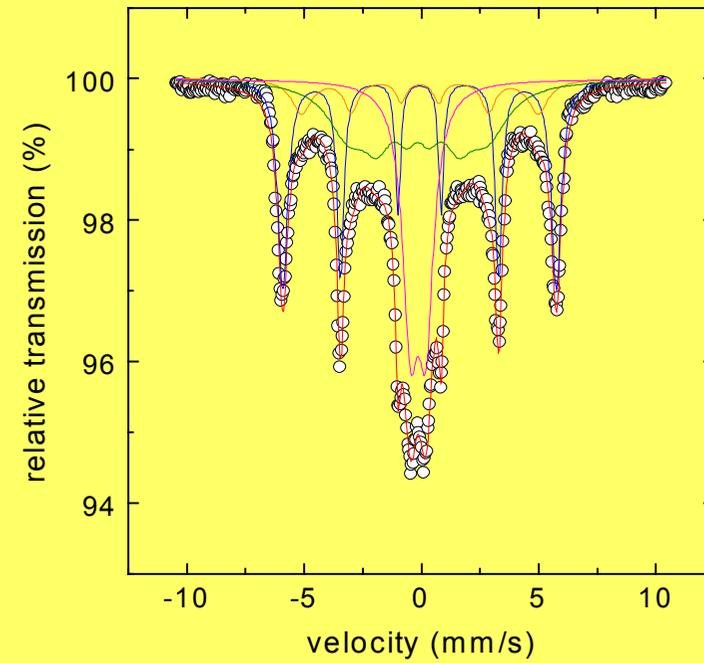
540°C

65 cr

21 am

$A_{23}=2,6$

14 int



580°C

74 cr

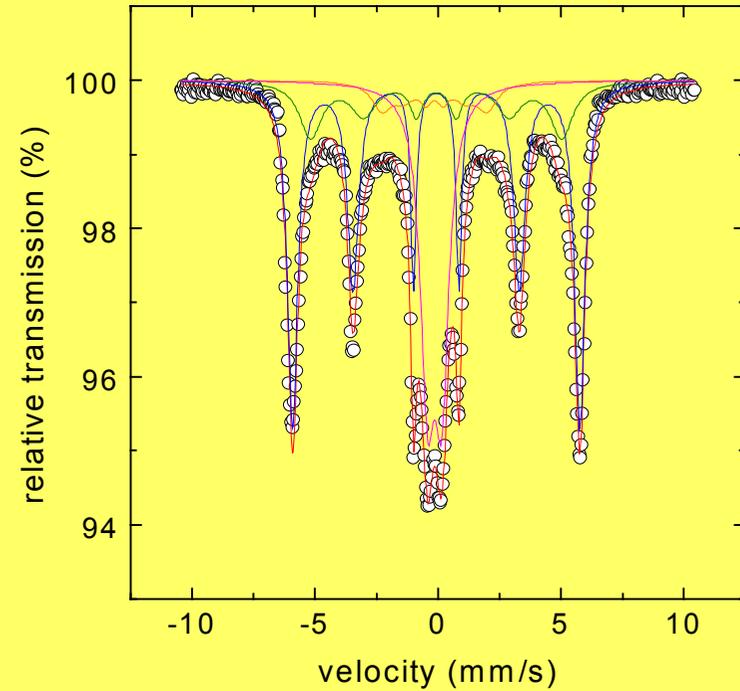
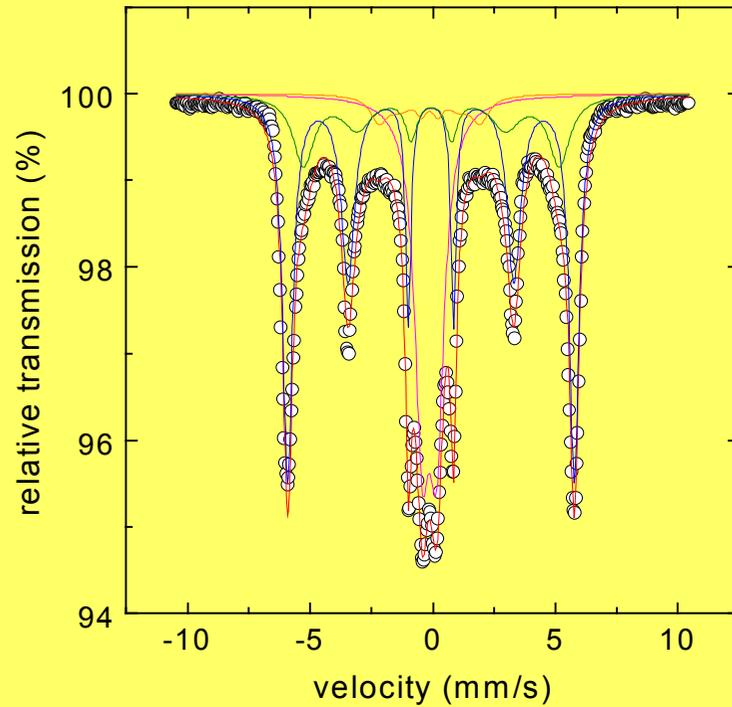
18 am

$A_{23}=2,4$

8 int



argon



540°C

54(65) cr

30(21) am

$A_{23}=1,4(2,6)$

16(14) int

580°C

57(74) cr

28(18) am

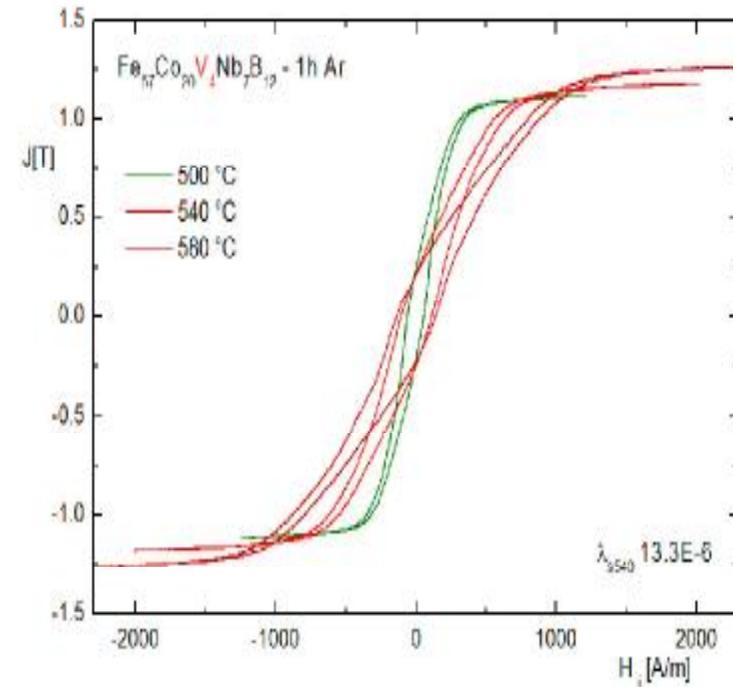
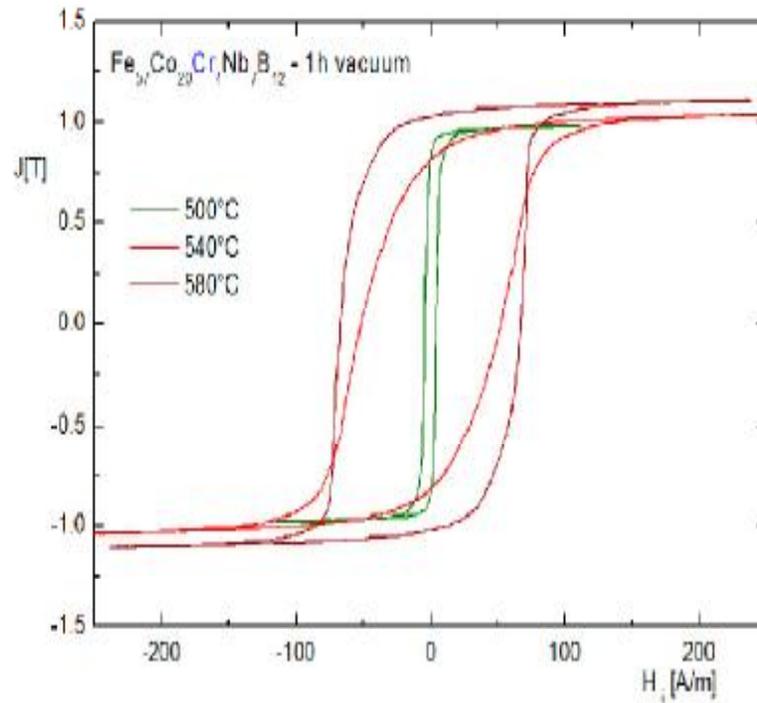
$A_{23}=1,5(2,4)$

15(8) int

vacuum

H-loops

argon



Small differences between annealing temperature and samples

**A_{23}
sensitive**

1. Tilt- increase \longrightarrow temperature \longrightarrow crystallinity

2. macroscopic heterogeneity



magnetoelastic anisotropy

3. **V, Cr avoid macroscopic heterogeneity**

Conclusion

- ➔ Comparing annealed samples we found that net magnetic moment is more deflected from the ribbon plane for argons heated sample.
- ➔ The annealing at the 580° C caused decrease of amorphous component and increase of interface phase. This phenomena confirmed that interface take part on the kinetic of crystallization
- ➔ Our results also confirmed that alloy containing chromium crystallize faster than alloy with vanadium content.