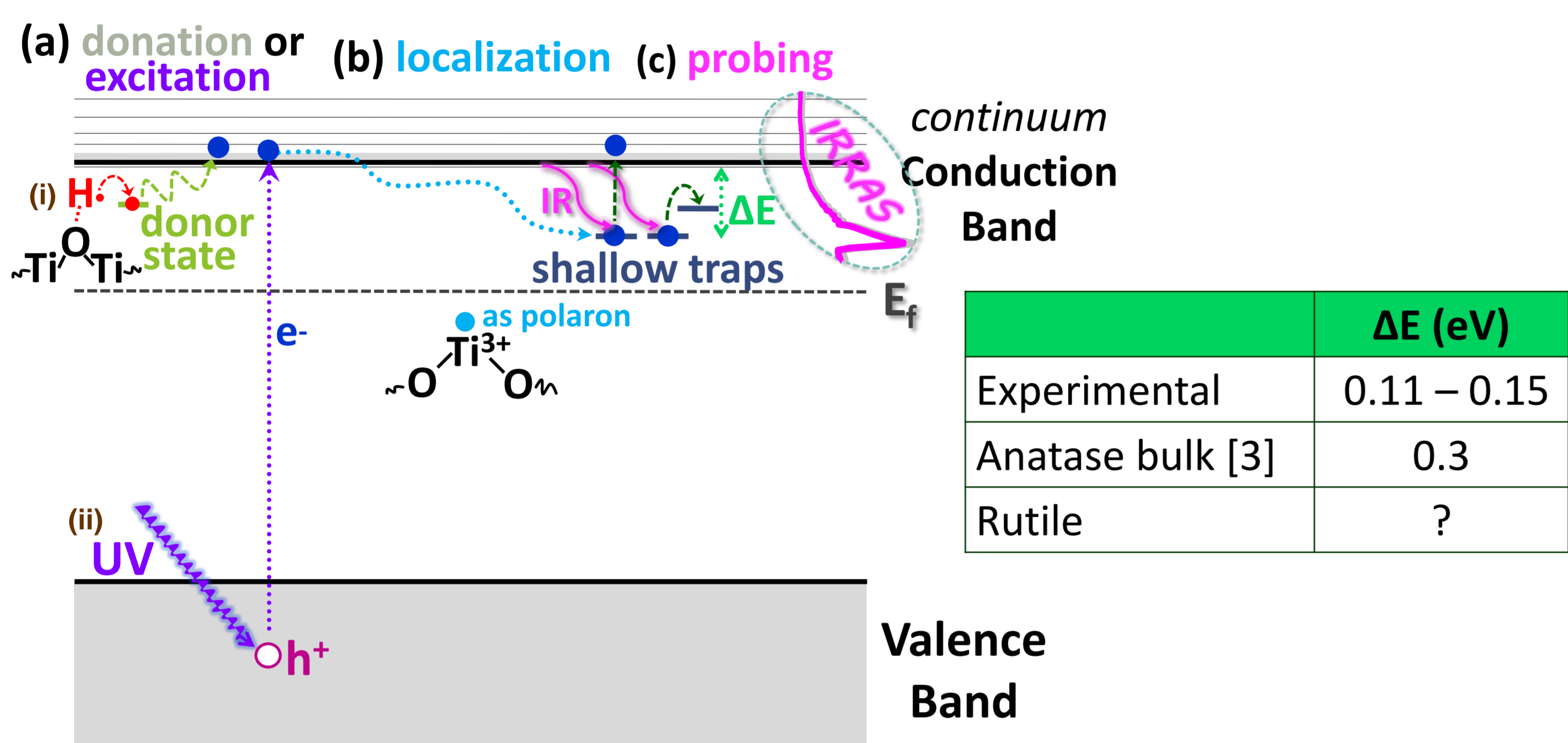


Probing Shallow trapped electrons of TiO₂ with UHV-IRRAS

Hikmet Sezen, Carsten Natzeck, Alexei Nefedov, Christof Wöll

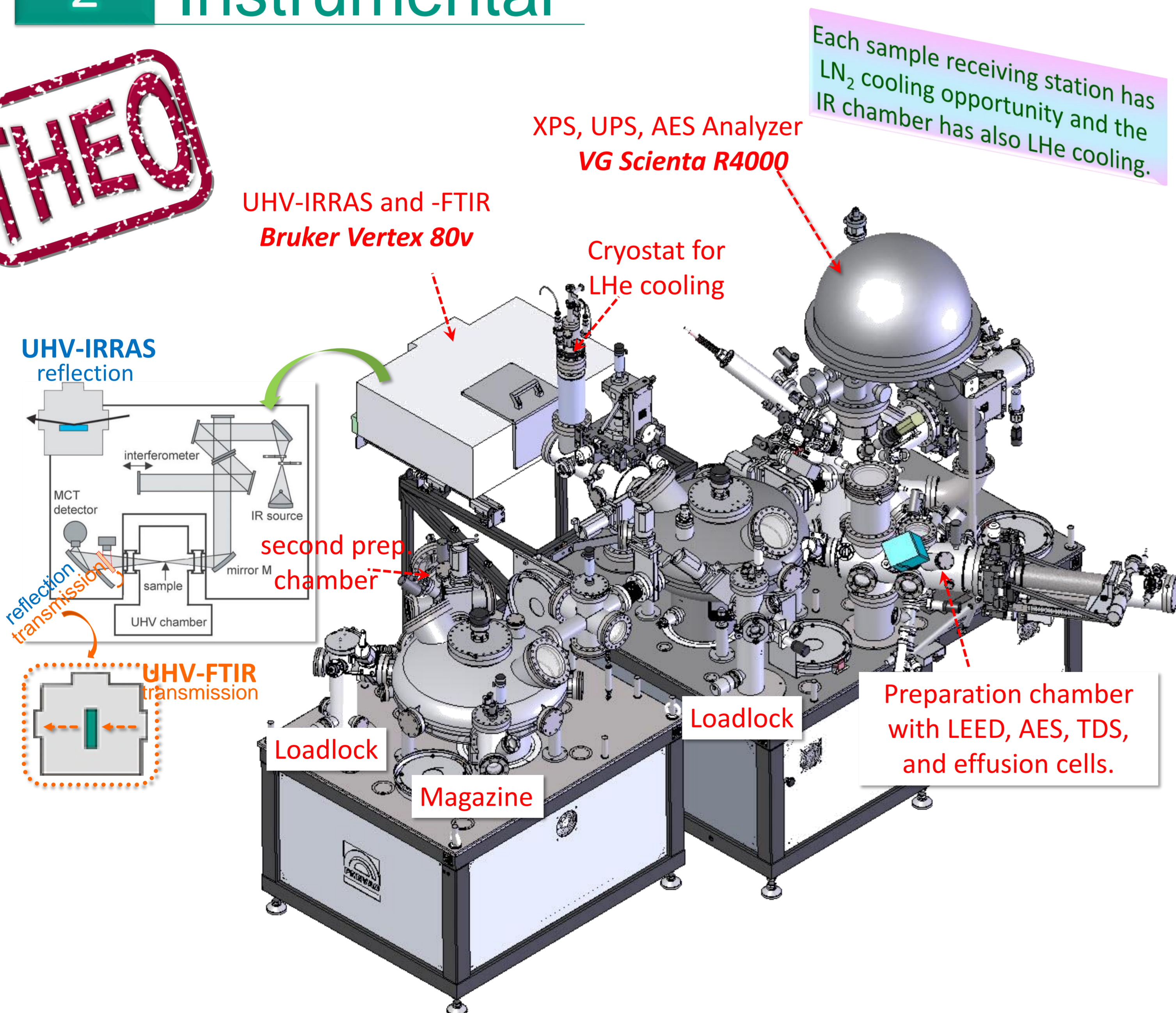
1 Scope

Probing trapped shallow state electrons delivering from both atomic hydrogen and UV treatments on powder and single crystal TiO₂ samples by a novel method of the infrared reflection absorption spectroscopy in an ultrahigh vacuum environment (UHV-IRRAS).^[1-2] However, now we have a more furnished UHV system at KIT, which is called THEO!



2 Instrumental

THEO



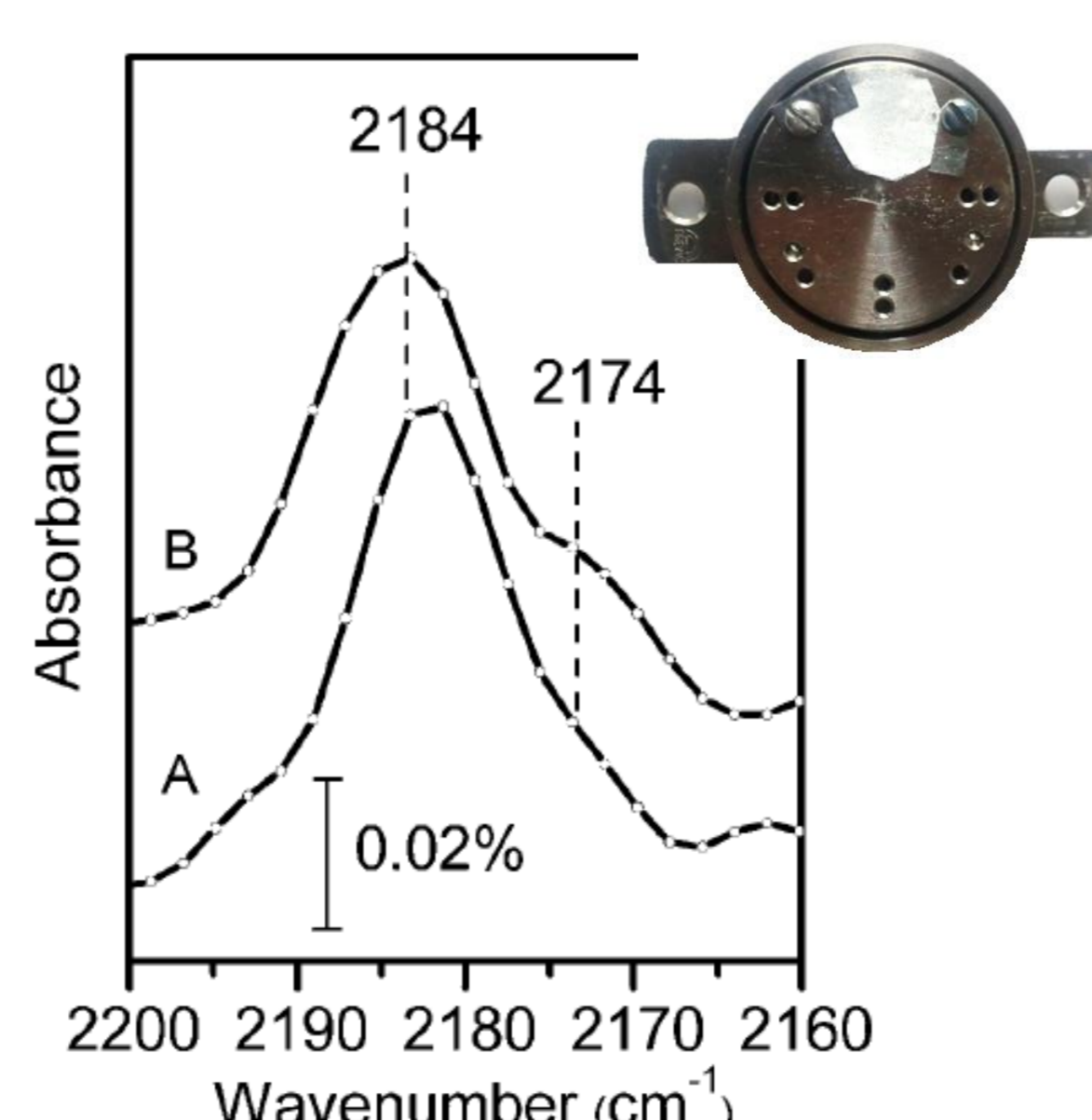
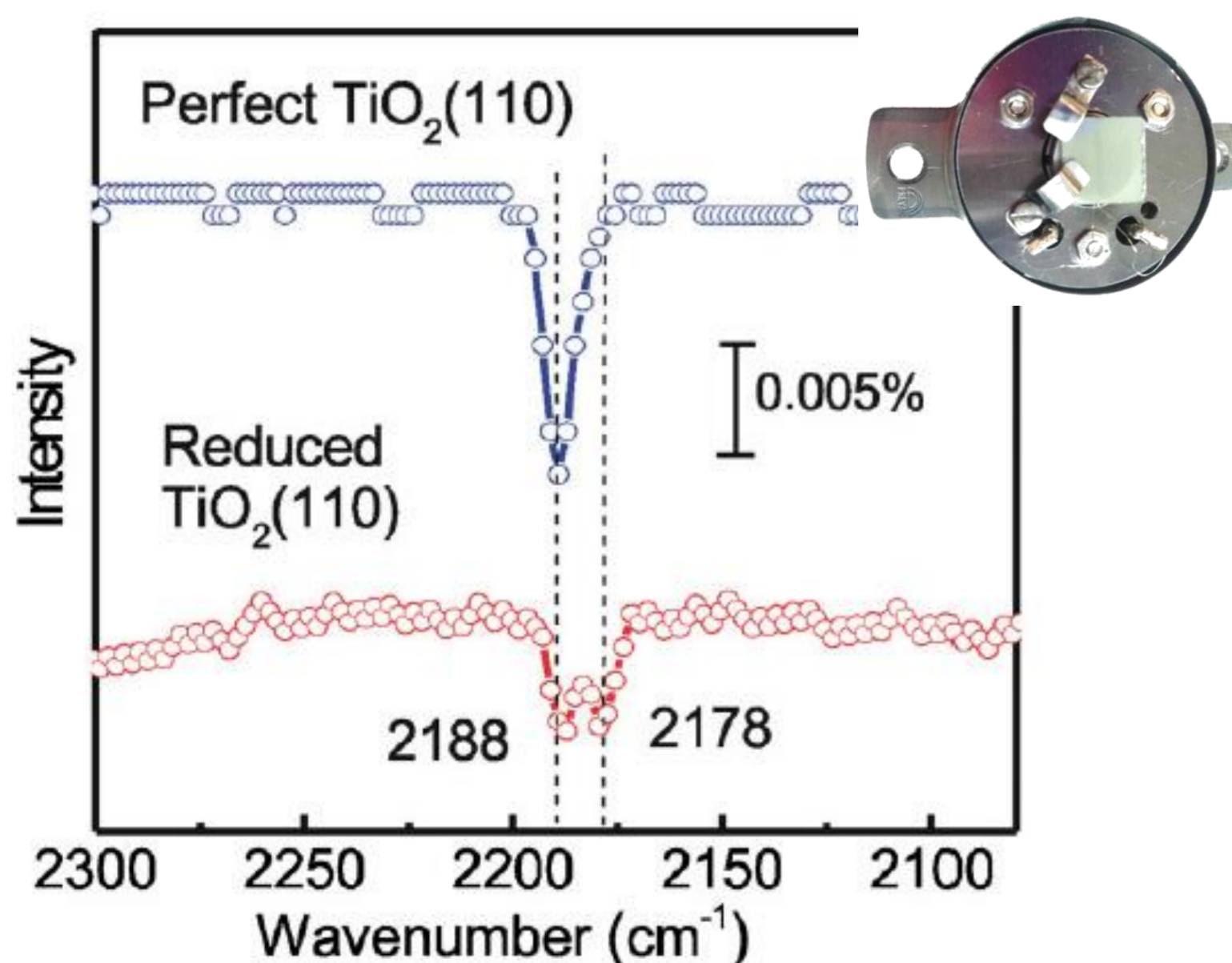
Performance of the system: CO absorption on r-TiO₂^[2]

Single Crystals:

E-beam sample holder:
 ΔT : 1500K-100K (LHe 30K)

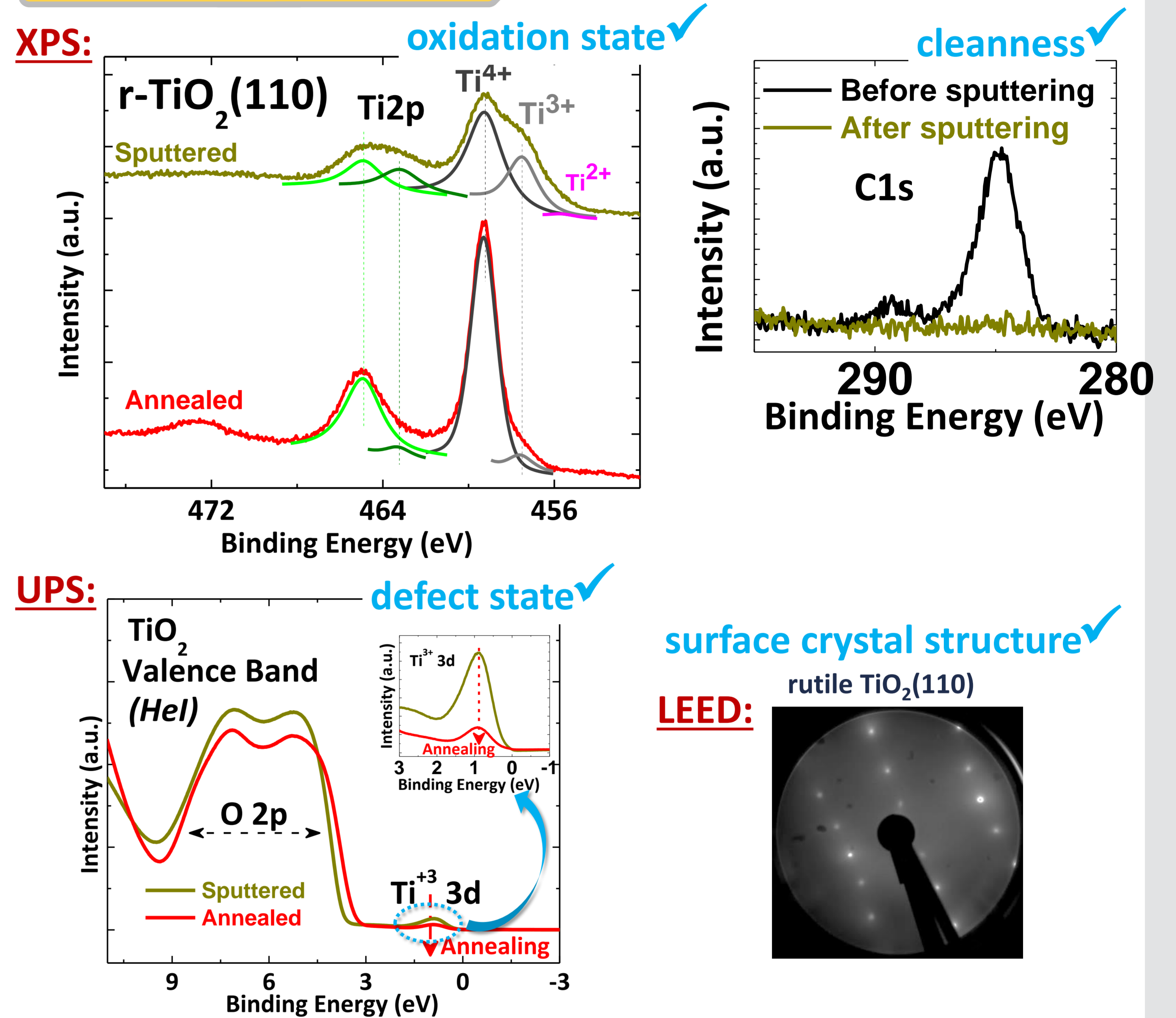
Powders:

Transmission sample holder:
 ΔT : 1200K-100K (LHe 30K)

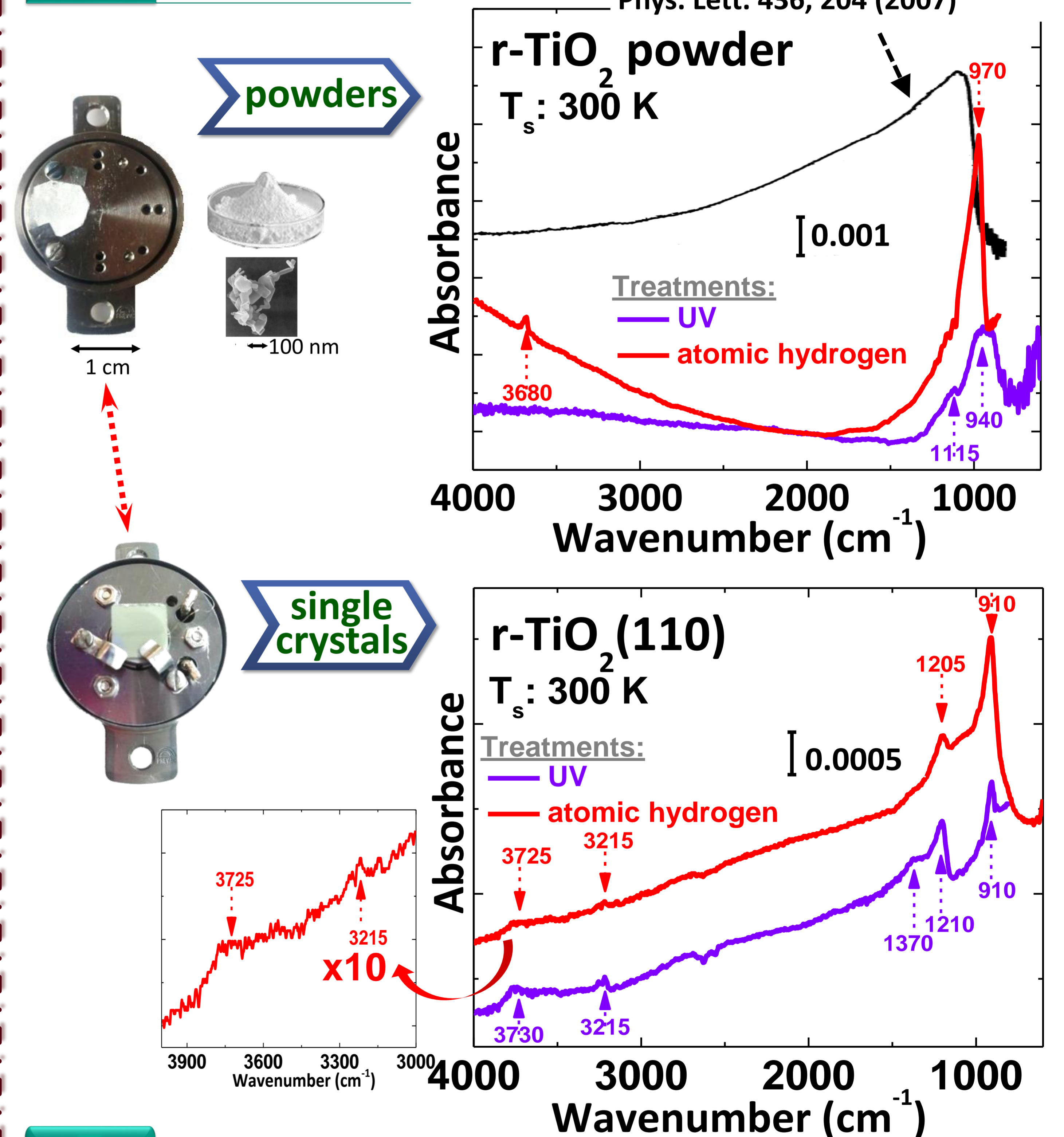


3 Experiment

Sample Preparation:



4 Results



5 References

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