

**„In situ studies of solids: watching materials in
aciton“**

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Monitoring materials under non-ambient conditions opens up possibilities to gain detailed insights in the behavior of materials during reactions. The variety of analytical tools which are nowadays accessible for in situ studies is as wide as the types of reactions which can be investigated. The talk we will focus mainly on the design of in situ diffraction experiments performed under variable temperatures (between 100 K and 1000 K), elevated gas pressures and adjustable reaction gas atmospheres. The materials which will be introduced cover complex hydrides as well as aminoalanes, transition metal oxide catalysts and metals/alloys used for electrochemical applications. *Illustration*