

**Thermodynamics and kinetics of interfacial
reactions in high temperature systems****Prof. Fiqiri Hodaj****Laboratoire Science et Ingénierie des Matériaux et
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要旨

Interfacial reactions between liquid metals and ceramics or solid metals are of technological importance in many fields of materials engineering such as metal processing, joining by brazing and soldering, manufacturing of composite materials, casting of metals, etc. Such reactions are often used in practice for example in promoting wetting when joining ceramics by brazing alloys, sometimes they are inherent to the system itself as in the case of soldering processes and in other cases they should be avoided as in metal casting technology. As this reactivity can affect the physical properties of the interface and especially the mechanical behaviour of the system, it is important to control the nature, the morphology and the microstructure of the reaction product. The aim of this presentation is to focus on the fundamental issues of liquid/solid interfacial reactions and to analyse the main thermodynamic and kinetic factors governing them. In particular, some physicochemical factors which can affect, or even control, the morphological evolution of the interfacial region (atmosphere, reaction product properties, metastable equilibria,...) will be discussed by using and analysing different examples of interactions in metal/ceramic, glass/ceramic and metal/metal systems.

