第 103 回物質化学セミナーのお知らせ

日　時　　平成 22 年 10 月 25 日（月）13:30〜14:30

場　所　　工学部 材料・化学棟 5 階　大会議室（MC526）

演　題　　**A closer look into the passivity of Nb-Ti alloys**

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司　会　　伏見　公志

共　催　　電気化学会北海道支部，腐食防食協会北海道支部，表面技術協会北海道支部
グローバル COE「触媒が先導する物質科学イノベーション」

Nb and Ti are both valve metals with strong passivation behaviour. Both metals form semiconducting oxides and the investigation of mixed oxides forming on alloys of various composition of these two elements are interesting from a scientific point of view. A combinatorial approach using a composition spread was used rather than the preparation of bulk alloy samples of fixed composition to allow for a high and continuous resolution. Important parameters including film formation factor, relative permittivity number, donor density and flat band potentials of the oxide were determined. Also the influence of the different transport numbers of the two cations on the resulting structure of the oxide is addressed. The technical interest in Nb-Ti alloys lays in the ability of Nb to stabilize the high temperature b-Ti. The properties of this material are advantageous in terms of the mechanical properties for applications e.g. as a biomaterial. Microelectrochemical investigations with the scanning droplet cell allowed studying the passivation behaviour of single grains with different crystallographic orientation. Moreover it is possible to address the grain boundaries directly and to distinguish between small and large angel grain boundaries. The talk will conclude with a first look on the CALMAR a large physicochemical investigation tool presently being set up at the JKU.

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