Amarante J. Böttger

Associate Professor

Phone: 015-2782243
E-mail: a.j.bottger@tudelft.nl
Website: http://mse.tudelft.nl

Research interests
Materials for energy applications, statistical thermodynamics of interstitial systems, thermodynamics of interfaces, physical chemistry of materials

Materials for Energy Applications

Recent Research activities:

Materials for solar and hydrogen applications.

- Thermodynamics of surface segregation in Palladium-based alloys under various gas environments.

- Thermodynamics of gas - silicon interactions for photovoltaic applications.

- Degradation processes in CIGS solar cells: X-ray diffraction analysis of structural changes in the aluminium doped zinc oxide.

- Development of nano-crystalline dense metal membranes for separation of hydrogen from gas mixtures

Other.

- Production of thermoelectric silicides by spark plasma sintering

- Hydrogen sorption and desorption properties of Palladium-alloys and steels investigated by electro-chemical methods and mass spectrometry

- The role of the substrate and adhesive layer on the absorption properties of nano-crystalline Palladium

- Development of analysis tools for X-ray diffraction data interpretation

Key publications:

A.V. Uluc, F.D. Tichelaar, H. Terryn, A.J. Böttger. *The role of heat treatment and alloying elements on hydrogen uptake in Aermet 100 ultrahigh-strength steel,* Journal of Electroanalytical Chemistry 739 (2015) 130–136

N. Verma, A.J.Böttger, *Mechanical and thermal stability of hydrogenated nanocrystalline Palladium thin films: the role of the substrate*. 10th Nanosmat Conference 2015

A.J.Böttger. *The role of entropy on the thermodynamic stability of metal (Pd)- H systems.* Gordon research Conference Hydrogen-Metal Systems

A. Schönecker, B. Kraaijveld, A. E. van Til, A. J. Böttger, P. Brinks, M. Huijben, M. den Heijer. *Cost Efficient Manufacturing of Silicide Thermoelectric Materials and Modules using RGS Technique*. 12th European Conference on Thermoelectrics. Materials Today: Proceedings 2 (2015) 538 – 547

Other Achievements:

Head of the X-ray facilities

Board member Bond voor Materialenkennis

Graduate School coach and mentor

Blended Learning Pilot

Confidential advisor