



Contribution ID: 19

Type: **Poster Presentation**

Pt –Al₂O₃ nanocoatings for high temperature concentrated solar thermal power applications

Wednesday, 13 July 2011 17:00 (2 hours)

Nano-structured structures based on metal-dielectric composites also called cermet (Ceramic-Metal) are considered among the most effective spectrally selective solar absorbers. For high temperature applications (stable up to 650°C) noble metals nanoparticles and refractory oxide host matrices are ideal as per their high temperature chemical inertness and stability: Pt/Al₂O₃ cermet nano-composites are a representative family. This contribution reports on the optical properties of Pt/Al₂O₃ cermet nano-composites deposited in a multilayered tandem structure. The radio-frequency sputtering optimized Pt/Al₂O₃ solar absorbers consist of stainless steel substrate/ Mo coating layer/ Pt-Al₂O₃/ protective Al₂O₃ layer and stainless steel substrate/ Mo coating layer /Pt-Al₂O₃ for different composition and thickness of the Pt-Al₂O₃ cermet coatings. The coatings microstructure, morphology, composition, optical properties were analyzed by x-ray diffraction, atomic force microscopy, infrared attenuated total reflection and UV-VI-NIR specular reflectances.

**Level (Hons, MSc,
 PhD, other)?**

PhD

**Consider for a student
 award (Yes / No)?**

No

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

No

Primary author: Ms NURU, Zebib Yenus (iThemba LABS)

Co-authors: Prof. CHRISTOPHER, Arendsen (University of Western Cape); Prof. MALIK, Maaza (iThemba labs)

Presenter: Ms NURU, Zebib Yenus (iThemba LABS)

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