

Transparent Ceramics & Their Composite Systems for Protective Window Applicationsby *Jeremy Koh*

Date: 20 Dec 2019
Time: 9:00am – 12:00pm
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Abstract

In this industrially-oriented work, highly transparent magnesium aluminate spinel ($MgAl_2O_4$) was produced through field assisted sintering of compositional powders under relatively low pressing forces. Additionally, a comparison between reactive and non-reactive sintering was made. To better position transparent ceramics in the industry, it is crucial to establish a method to join these materials and achieve suitable properties for targeted applications. A transparent bonding method was developed for the joining of transparent ceramics. Microstructural characteristics, as well as both mechanical and optical properties of the bond formed were also studied, with tests conducted in close relation to the environment of the intended functional system incorporating the bonding agent. Finally, a functional transparent protective window system of a mosaic design comprising a plurality of transparent ceramic tiles was developed and studied, with the developed bond evaluated also as an acoustic couplant for the system.

Speaker Jeremy Koh**Biography**

Mr. Jeremy Koh is currently an Assistant Principal Engineer (Strategic Planning) of ST Engineering (Land Systems), and a Ph.D. student in Materials Science & Engineering under the mentorship of Professor John Wang. He received his Bachelor's Degree from the National University of Singapore. He was the Project Chief Engineer for the setting up of an advanced ceramics pilot plant and, together with his team, launched the CleArmour line of transparent ceramic products. Prior to his work in advanced ceramics, Jeremy was a trained thermal spray engineer focusing on Cold Gas Dynamic Spray for the repair and enhancement of airframes and land platforms.

Host A/P Michel Bosman*ALL ARE WELCOME!*