Self-Healing $M_{n+1}AX_n$ Phases

Recent Research activities
Goal of the research project is to determine quantitatively the crack filling kinetics and strength recovery of selected $M_{n+1}AX_n$ phase ceramics as a function of temperature, time and environment. To this end a study is conducted to specify potentially self-healing MAX phases, based on their thermodynamic and oxide properties. Of 86 known ternary carbides and nitrides with the composition $Mn+1AXn$ a limited number will be selected to determine their crack filling behavior. These will be synthesized and tested with a newly developed methodology. (People Program (Marie Curie ITN) of the European Union’s seventh framework program, FP7, grant number 290308 (SHeMat),)

![Figure 1. Periodic table with $M_{n+1}AX_n$ phase components](image)

Selected Publications

Farle, A-S; L. Boatemaa, L. Shen, S. Goevert, J. B. W. Krok, M. Bosch, S. Yoshioka, S. van der Zwaag and W. G. Slooff, Demonstrating the self-healing behaviour of some selected ceramics under combustion chamber conditions. (Submitted)


Selected Presentations


Other Achievements
Founding Member and Secretary of the 3mE Graduate School PhD Council (2013-2015)

Founding Member of Tubalkain Student Association (3mE revival 2015)