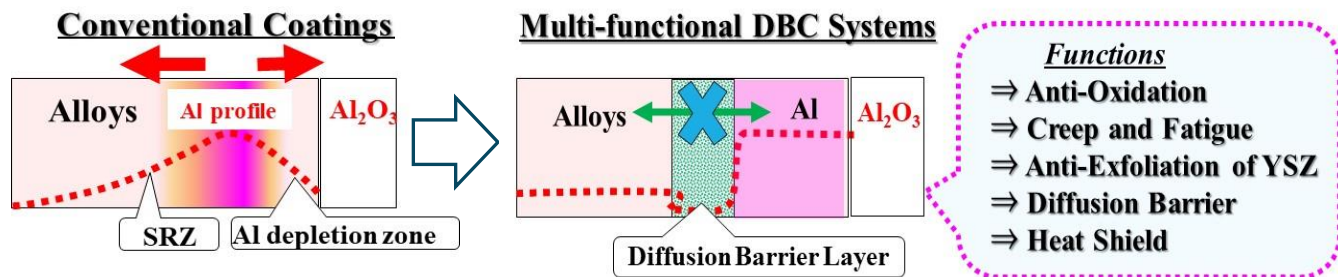


Multi-functional DBC Systems for High Temperature Applications

oxidation-resistance, mechanical properties, and thermal barrier



DBC systems are not just only coatings but also a sort of composite materials

atmosphere CO_2

**Rocket Engine
Thruster Engine**

(1400°C)



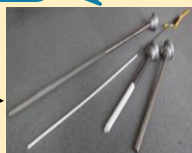
**Jet Engine
Gas Turbine**

(1200°C)



**Thermocouple
Nozzle**

(1100°C)



**$\text{H}_2, \text{NH}_3, \text{CH}_3$, etc.
< H_2O >**

⇒ Oxidation in $\text{H}_2 + \text{H}_2\text{O}$
differs from that in $\text{O}_2 + \text{CO}_2$.
⇒ Cr_2O_3 and SiO_2 are non-protective.
 Al_2O_3 is better.

***R&D of novel coatings
for H_2O atmospheres
are under progress***

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