

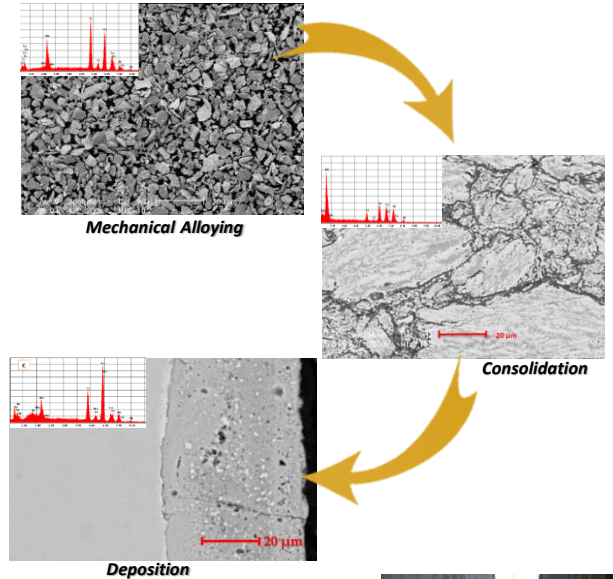
## FIT-4-NMP Networking and Brokerage Event

organized by FIT-4-NMP H2020 project at the 45<sup>th</sup> International Semiconductor Conference - CAS 2022

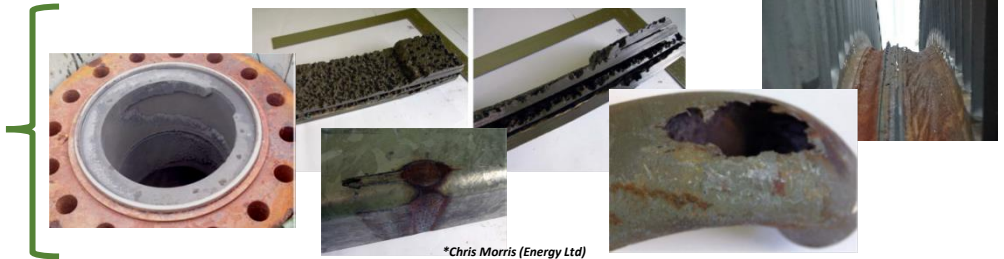
### Multicomponent alloys with corrosion-erosion resistance

**Short description:** High-entropy alloys could provide a solution for the aggressive environments due to their impressive properties. In previous research, solid-state processing of high purity Co, Cr, Fe, Ni and Mo metallic powders were deposited on stainless steel and the results were promising. CoCrFeNiMo base high entropy alloys tested in corrosive media in situ (geothermal environment) and in the laboratory (saline solution), presented a very good corrosion rate of 0.00016 mm/year.

In order to increase the wear resistance, ceramic particles are added into the mixture, developing composite materials with superior properties for a large spectrum of domains and industries. The alloys could be tailored depending on the final destination, with specific properties, resulting in wide range of application.



Corrosion, erosion, wear and abrasion affected surfaces



\*Chris Morris (Energy Ltd)

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**The main research directions are:**

- Development of research in the field of ceramic materials and components for electrical engineering
- Development of research in the field of ceramic materials and components for energy
- Development of research in the field of ceramic materials for the decontamination / purification of polluting waters
- Development of research in the field of biomaterial ceramics
- Development of research in ceramic materials for space, security, defense



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The aim is to develop materials resistant to aggressive environments, where corrosion, abrasion, wear and scaling are affecting the in work components. Coating surfaces with high entropy alloys and high entropy alloy composites is an economic efficient method of extending the life of the equipment while improving the properties. Our goal is to establish connections with partners from industries, where damaging factors caused by the aggressive environment have an important impact over functionality.

**Advanced materials/Manufacturing technologies**

