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INNUMAT

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Innovative Structural Materials for Fission and Fusion

Scope & objectives

Materials

Fission:
- HEAs
- AFA steels
- Coated 15-15Ti
- Weld overlay

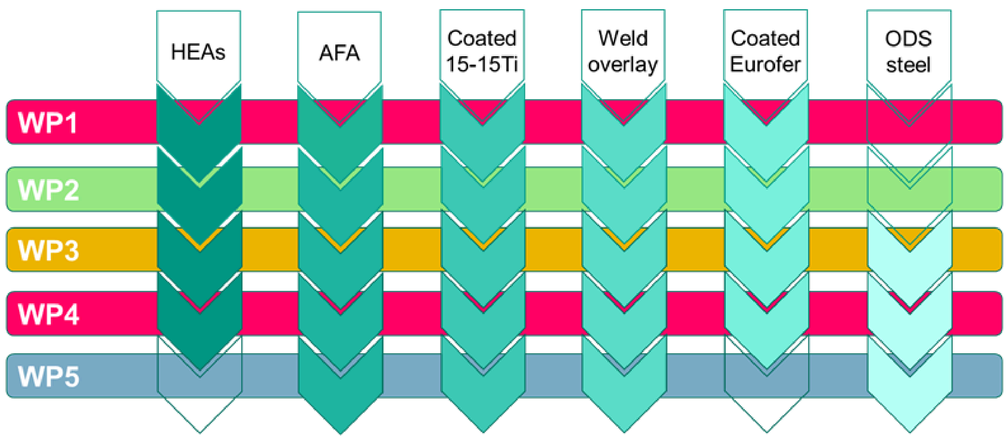
Fusion:
- Coated EUROFER
- ODS steel

Reactor applications

- Fission molten salt reactor
- Fission heavy metal cooled reactor
- Fusion DEMO

} incl. respective SMRs

WPs and research tracks – matrix structure



Specific goals

- Production, basic characterisation and distribution of REFERENCE materials
- Advanced experimental characterization with respect to
  - compatibility with coolants
  - HT mechanical behavior and thermal stability
  - radiation tolerance
- Deep, beyond state of the art understanding of main mechanisms determining corrosion, mechanical behavior, aging, and degradation of properties due to irradiation supported by comprehensive modelling at different scales
- Use computational and experimental high throughput methods in materials design and screening
- Design and develop NEW improved materials, in particular HEAs and coated materials (15-15Ti and Eurofer)
- Establish accelerated qualification roadmaps including guidelines for standardization of SSTT, among others small punch testing (SPT)
- Exploit INNUMAT results in the nuclear fission and fusion fields and beyond

Partners

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