

Some Project Ideas

1st GERMAN-CZECH BUSINESS MEETING

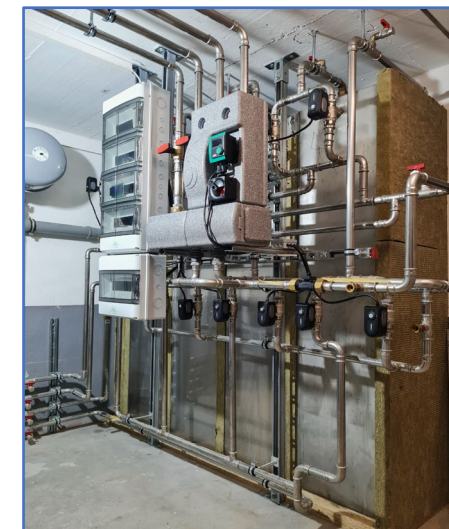
POTENTIAL PROJECT TOPICS

- Thermal energy storage concepts for cooling and heating in built environment
- AI-supported approach to material systems: lay out & design, lifetime prediction
- New concepts of renewable fuels

Thermal energy storage

Heating and cooling in built environment

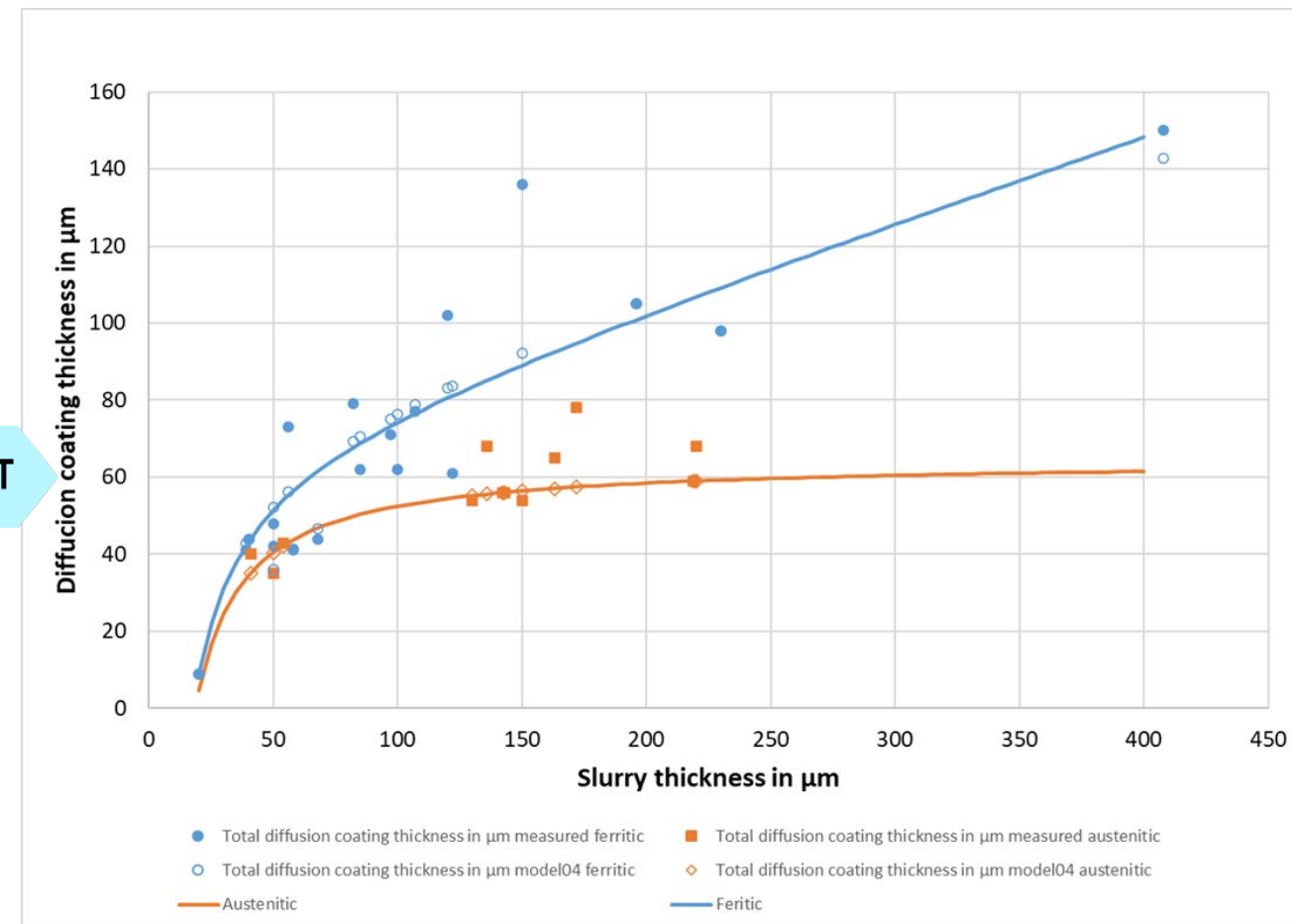
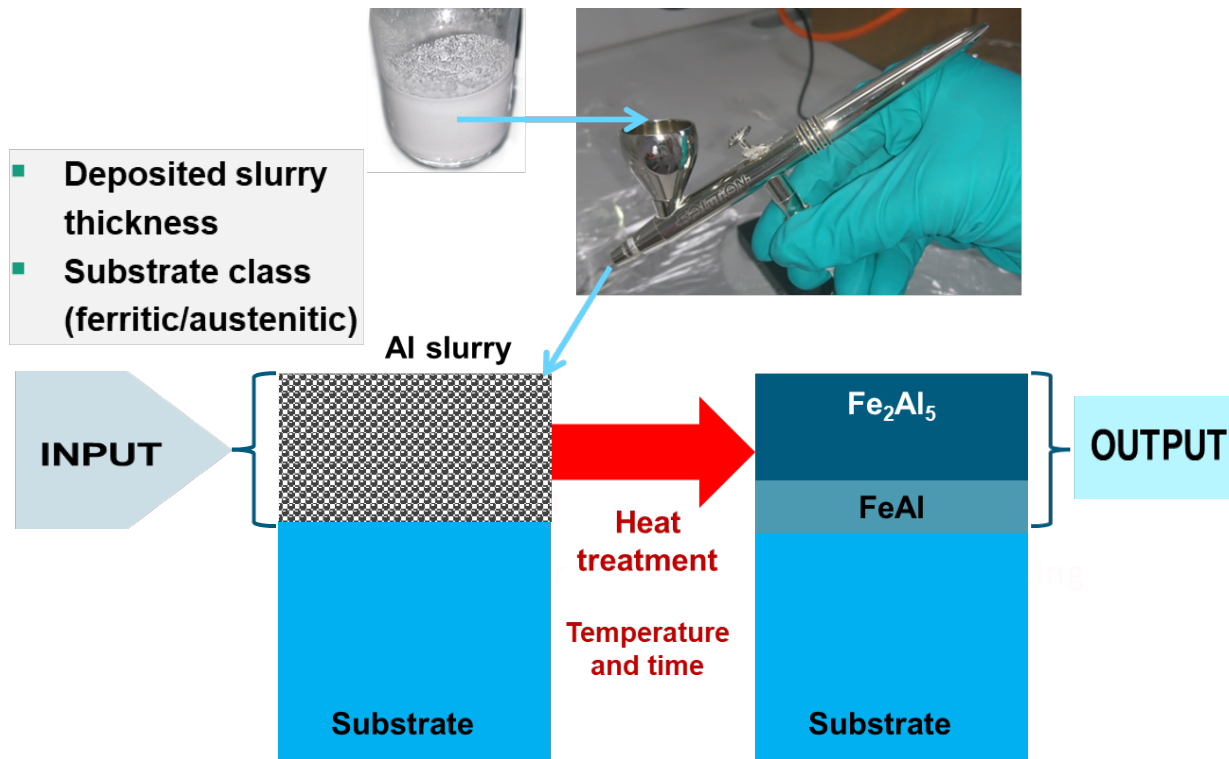
- Development of **low temperature switchable PCM (sPCM)** for technical use
- Design and implementation of a **compact two-stage thermal energy storage (TES)** with working temp. of 35 °C and 58 °C
- Flexible system control and communication strategy for reduction of power peaks and energy costs
- Simulation (**digital twins**) and demonstration (**Demo site at VSB**) of function, scalability and cost-effectiveness of the storage system



Application of AI to materials

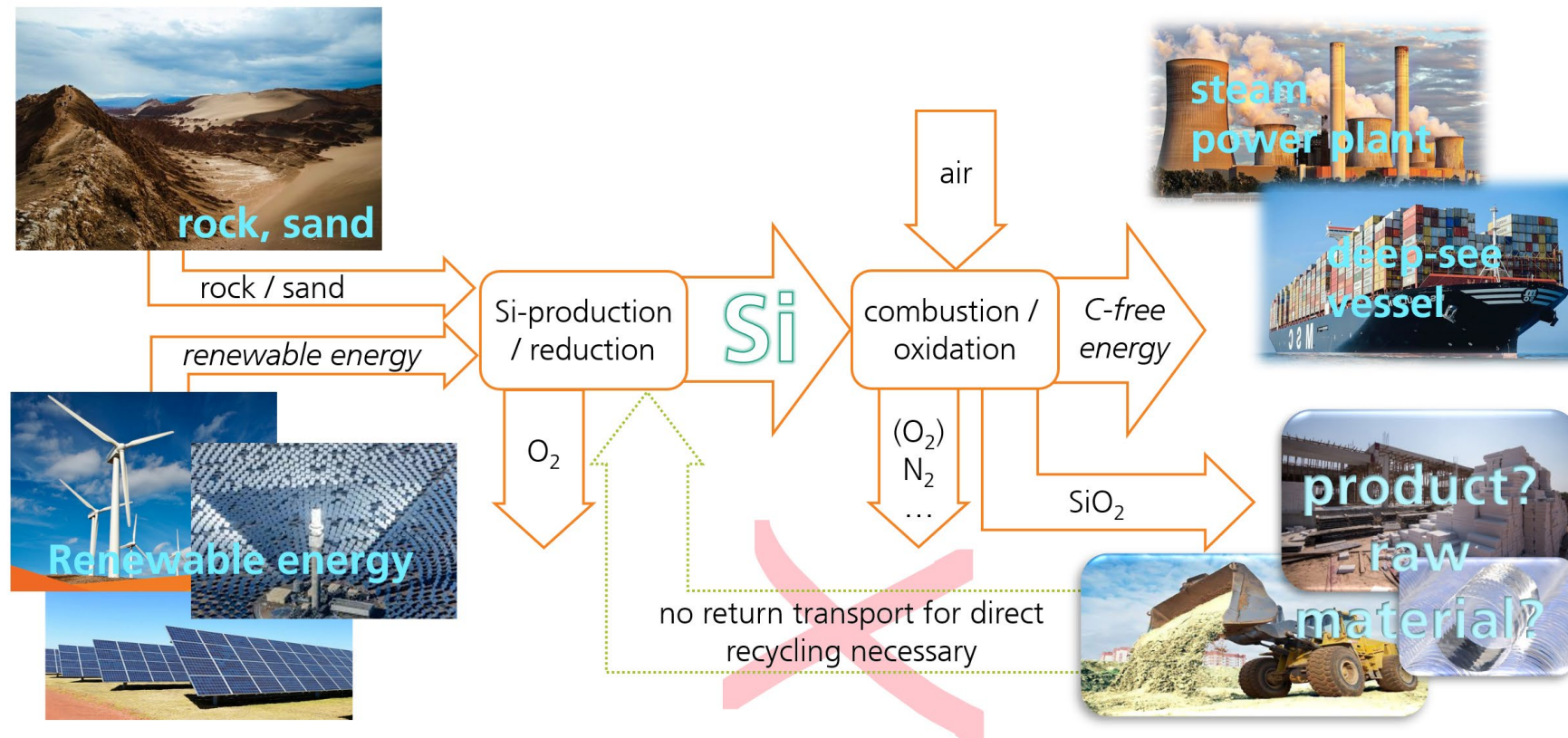
Use of Symbolic Regression to model aluminide diffusion coatings

The determined data-based models fit **complex dependencies** on several parameters even with unknown relationship.



Ne concepts of renewable fuel: Silicon as carbon-free fuel for power generation

Use of silicon powder as a renewable and carbon-free fuel and energy carrier for heat and power generation with potential to re-use the combustion product silica towards a closed cycle solution.



THANK YOU FOR YOUR ATTENTION

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