



Powder metallurgy for E-mobility Gears through Augmented Surface integrity State (PEGASUS)

Motivation

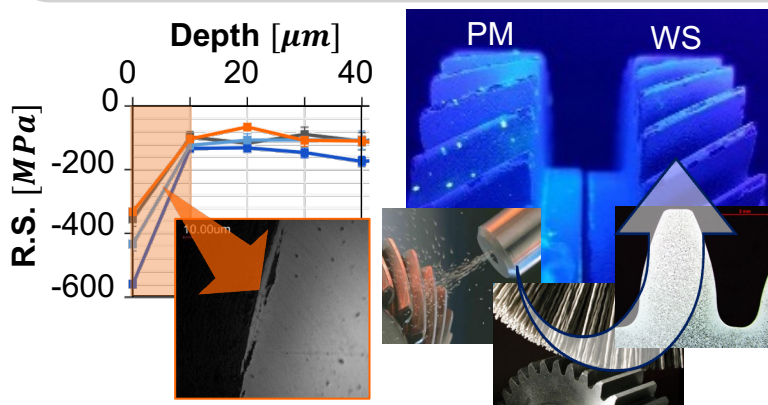
The surface integrity induced by PM porosity is a roadblock to the harsh requirements of e-mobility gears. Finishing routes matching the inherent PM properties and the gear functional requirements can enable an augmented surface integrity state which leads to proper load capacity.

Objective

Appropriate **Finishing Routes** for PM chain to fulfill the **e-vehicle PM Gears requirements** regarding load capacity.

Approach

The approach was divided into two main fronts: The **first approach** is oriented to enhancing the surface integrity considering high performance applications. The **second approach** is oriented to cost efficiency. The second approach consider as well open porosity as lubrication mechanism.



- **Design guideline** for PM Finishing chain
- **Density vs fatigue** reference chart
- Mapping of **open porosity effect** on manufacturing and running behavior
- Mapping effect of **residual stress on durability** for PM