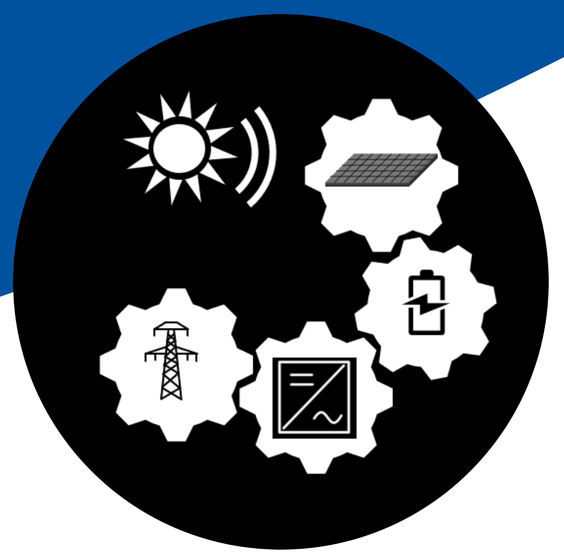
UNI STUTTGART

Department of Reliability Engineering

Cost-efficient reliability of PV power plants with battery systems



Motivation

In view of the increasing importance of renewable energies the expansion of PV-systems is of great importance. A crucial factor in this expansion lies in the economic viability of these systems.
The profitability of PV systems is closely linked to investment costs, reliability, and lifetime, where components such as inverters and battery systems play a crucial role.

To ensure/guarantee the availability of PV systems for lifetimes in the range of 20 years and more, understanding aging and lifetime models becomes necessary.
The implementation of Predictive Maintenance strategies offers a promising opportunity to minimize downtimes and thus ensures the economic operation of PV systems.

Goals

- Development of degradation and lifetime models for semiconductor components, inverters, and battery systems
- Prediction of Remaining Useful Life (RUL) based on time-discrete and uncertain condition diagnosis of a system.
- Identification of frameworks and prerequisites to successfully apply PHM (Prognostics and Health Management).
- Derivation of potential Predictive Maintenance strategies.

Partner:

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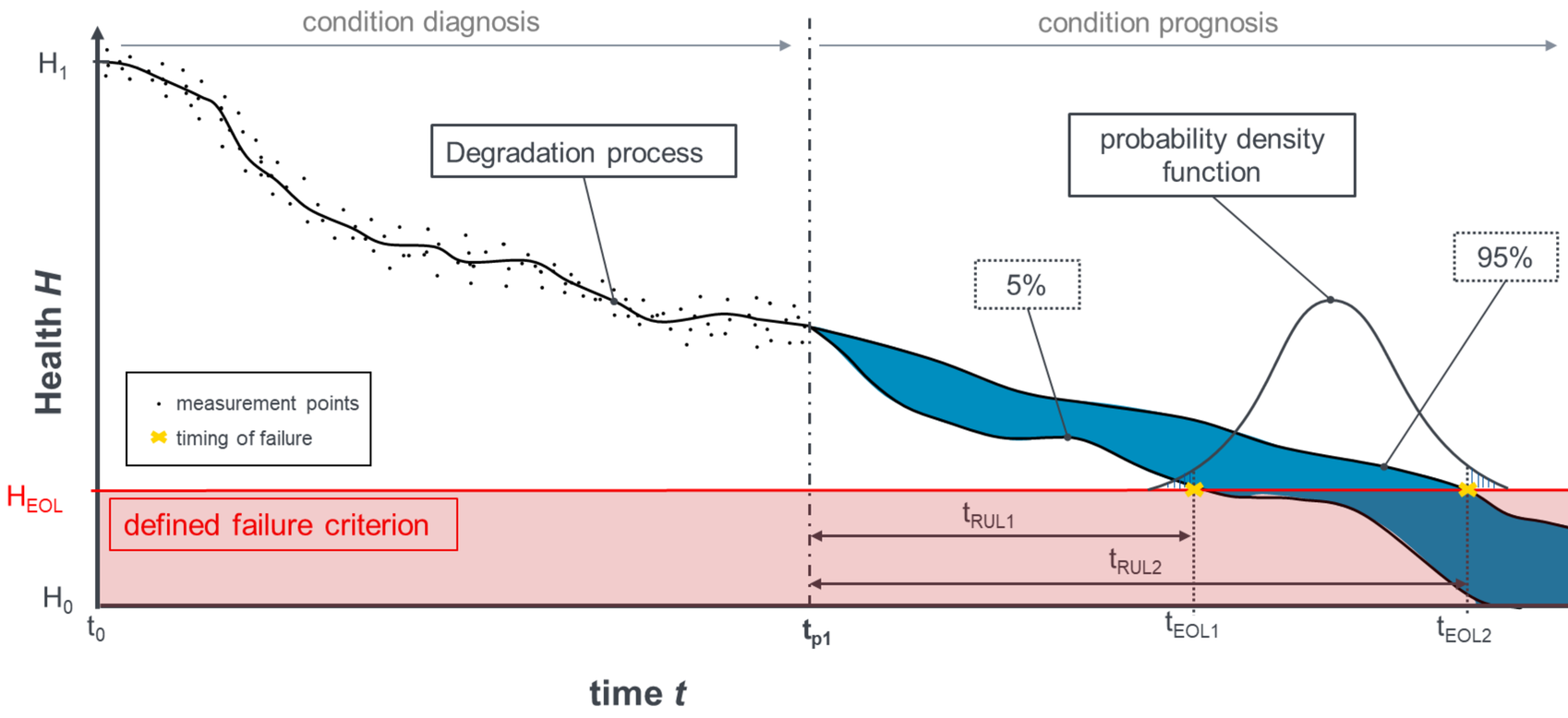

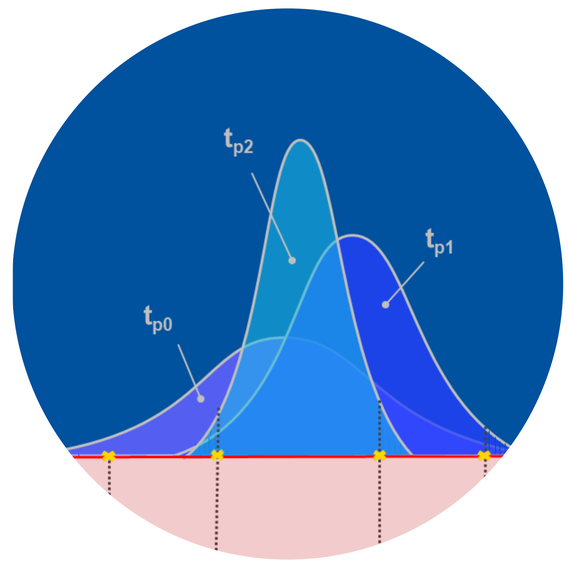

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