**5th DVM/SF2M workshop, Kaiserslautern, Germany, 22-23 June 2022**

***"French & German scientific rendez-vous on structural durability"***

# BigData approaches for fatigue assessment

Since 2013, the DVM/SF2M workshop is devoted to enhance exchanges between French & German structural durability communities, especially dealing with ground transportation industries.

In the sequel of the last event in Senlis, 2018 and after a longer break than usual due to the worldwide pandemic, we are pleased to welcome you again and let you appreciate high-value exchanges on site.

The mark of the 5th edition will be an opening to new fatigue assessment approaches thanks to BigData tools. New technologies let us access to large-scale info about how mechanical systems works on the field and this significantly shock and improve the fatigue assessment of components and systems. At first, because we may better know the in service use, leading to a tailor made design. Secondly, opening the way to the transition between a "safe life" to a "fail safe" approaches, once it is possible to switch to an effective preventive maintenance strategy. Moreover, any knowledge about the current component or system field use may be an opportunity to create innovative services also for the final customer, not only for the design team. This seminar will gather several experiences already giving relevant feedbacks, coming from different industrial applications (e.g. railway transport, automotive), and involving experimental measures and numerical computations as well.

As usual for this workshop, presentations showing how research projects may success in industrial practice will be addressed. In order to underline the workshop character of this event, opportunity for large discussion will follow each session.

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**Day 1 – Wednesday, 22. June 2022**

12:00 **Reception opening and lunch**

13:00 **Introduction – Sébastien Chéreau**

13:15 **First session** - Moderator: Matteo Facchinetti

*Big Data, IoT and machine learning – new perspectives for load data and failure prediction*
*Harald Tiesler – ZF Friedrichshafen AG – 30min. Discussion – 60min.*

*Big Data structuration for fatigue smart testing*
*Xavier Hermite – CETIM – 30min. Discussion – 60min.*

16:15 **Photo and Coffee-Break**

16:45 *Model-based and data-driven structural maintenance: Damage localization and remaining lifetime assessment*
A. Cugniere / A. Mösenbacher /– IABG *– 30 min. Discussion – 60min.*

18:15 Short guided tour of ITWM experimental facilities

19:00 **Dinner – open end.**

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**Day 2 – Friday, 23. June 2022.**

08:00 **Reception**

08:15 **Second session** - Moderator: Sébastien Chéreau

*Analysis of connected vehicle data for the durability engineer*
*Frédéric Kihm - HBK / nCODE (France) – 30min. Discussion – 60min.*

*Data based estimation of vehicle loads quantities*
*M. Burger – ITWM Kaiserslautern – 30min. Discussion – 60min.*

11:15 **Coffee-Break**

11:30 *Hybrid approach to predict fatigue event in railways rails*
*Vincent Laurent et Maxime Gueguin– Eurobios ; Olivier Vo Van - SNCF – 30min. Discussion – 60min.*

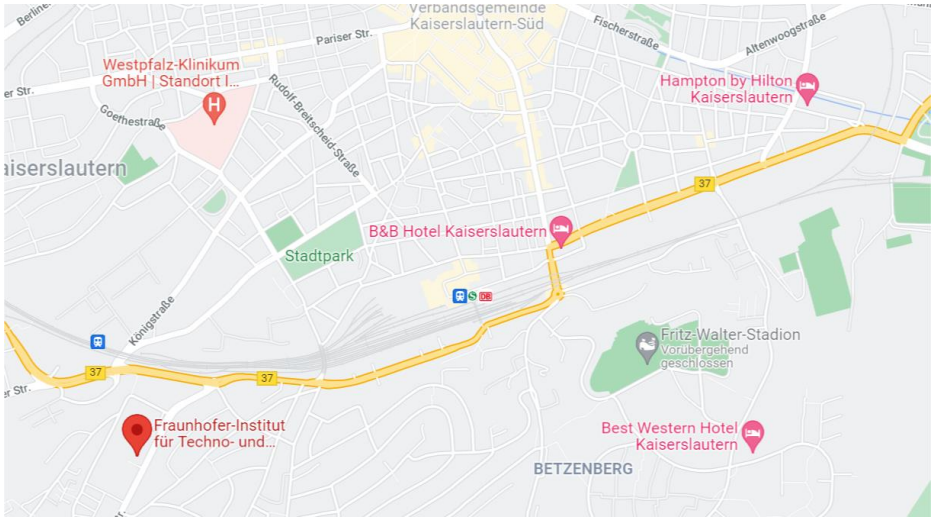
13:00 **Buffet Lunch**

14:00 **End of the workshop**

## Useful information

### - ITWM location

Fraunhofer-Institut für Techno- und Wirtschaftsmathematik
Fraunhofer-Platz 1, 67663 Kaiserslautern – Germany
https://www.itwm.fraunhofer.de/en.html




### - Railway connection between Kaiserslautern & Paris

Several high-speed trains connect Kaiserslautern HBF and Paris (gare de l'est) on a daily basis. According to the conference schedule, please note hereafter two relevant timetables: