

# **12<sup>th</sup> CIMAC CASCADES 2021**

22 SEPTEMBER 2021 | GRAZ, AUSTRIA

**On the Way towards Decarbonization – Green Fuels,  
Hybridization and Digitalization in Large Engine Applications**

# **Novel approaches for vibration monitoring by a cloud-supported system architecture**

Michaela Mühlberger, Software Developer  
Andreas Thalhammer

*Geislinger GmbH, Hallwang, Salzburg, Austria*

For decades there have been multiple generations of monitoring systems established that are designed to continuously monitor torsional vibrations in a powertrain. Such torsional vibration monitoring systems are a well-known and wide-spread instrument to supervise the vibratory behavior of a rotating component in a driveline. The main purpose of these monitoring systems is an inline comparison with reference data that gives direct feedback to the operator of the installation when safety levels are reached or exceeded. However, the tendency towards more and more complex propulsion systems – driven by e.g. hybridization or alternative fuel concepts – lead to a variety of load profiles and context information that must be considered for vibration monitoring purposes. Additionally, the market shows an increasing demand for performance optimizations and predictive analyses that are typically beyond the scope of standalone vibration monitoring modules and they cannot be entirely handled on the edge due to limitations on computational power and data storage. In this talk it is illustrated how a vibration monitoring system with extended connectivity options can be designed that addresses all the issues from above: on the one hand side it is shown how a continuous data push into a cloud infrastructure can be established and how the data can be used for improved system analyses and condition monitoring. On the other side, the importance of 3rd party system integration is discussed which allows the combination of different data sources to obtain an even better system understanding and enhanced vibration analysis.