



## Deliverable 3.3

### SHM System on Coupon Level

<b>Due Date:</b>	31 <sup>th</sup> December 2022
<b>Submission Date:</b>	21 <sup>st</sup> February 2023
<b>Dissemination Level:</b>	CONFIDENTIAL (CO)
<b>Lead beneficiary:</b>	JKU
<b>Main contact:</b>	Christoph Kralovec

<b>Project acronym:</b> SUSTAINair	<b>Project Number:</b> 101006952
<b>Start date of project:</b> 1 <sup>st</sup> January 2021	<b>Project duration:</b> 42 months (June 2024)



# 1. PUBLISHABLE SUMMARY

The present deliverable 3.3 reports the successful testing of a SHM system on coupon level. The coupon is thereby represented by a composite-titanium joint, which contains titanium pins that enhance the structural properties of the resulting joint. The joint is tensile-tensile loaded by an increasing load amplitude until final failure. Synchronously measurements are taken according to a defined strategy for damage evaluation that is transferable to a structural component during aircraft operation.

The following functions of the SHM system are demonstrated:

- The applicability and durability of the system of sensors.
- The functionality and reliability of the automated data acquisition system.
- The sensitivity of the selected SHM methods and data evaluations for damage initiation and propagation.

Furthermore, the mechanical tests show the high damage tolerance of the investigated hybrid pinned joint, a precondition for SHM application.

