ONE-PAGE ABSTRACT TEMPLATE AND GUIDELINES –TITLE CENTERED AND ALL CAPS

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The introduction of Ceramics Matrix Composite (CMC) in hot part of aeronautical engines has become a reality on LEAP engines (for instance CMC shroud made by GE Aviation). In this context, SAFRAN develops CMC technologies such as 3D reinforced SiC/SiC composites obtained by CVI and Melt Infiltration and Ox/Ox composite. One of SAFRAN's challenges is to achieve the best compromise between improving material performances and designing composite structures. It is necessary to understand relationship between architecture at different scales and their global and local thermo-mechanical behavior [1] to understand the thermo-mechanical behavior of these materials and parts (Figure 1). These multi-scale studies allow understanding of mechanical behavior, to define multiaxial criteria to optimize the architecture of the material and parts and to justify.
To do so, it is necessary to develop advanced methods based on the description of the material (tomography, statistical morphological studies, …), modeling (linear and nonlinear) and validation by testing (ex-situ and in-situ). SAFRAN is developing internally and with its academic partners, digital and experimental tools to meet these challenges.

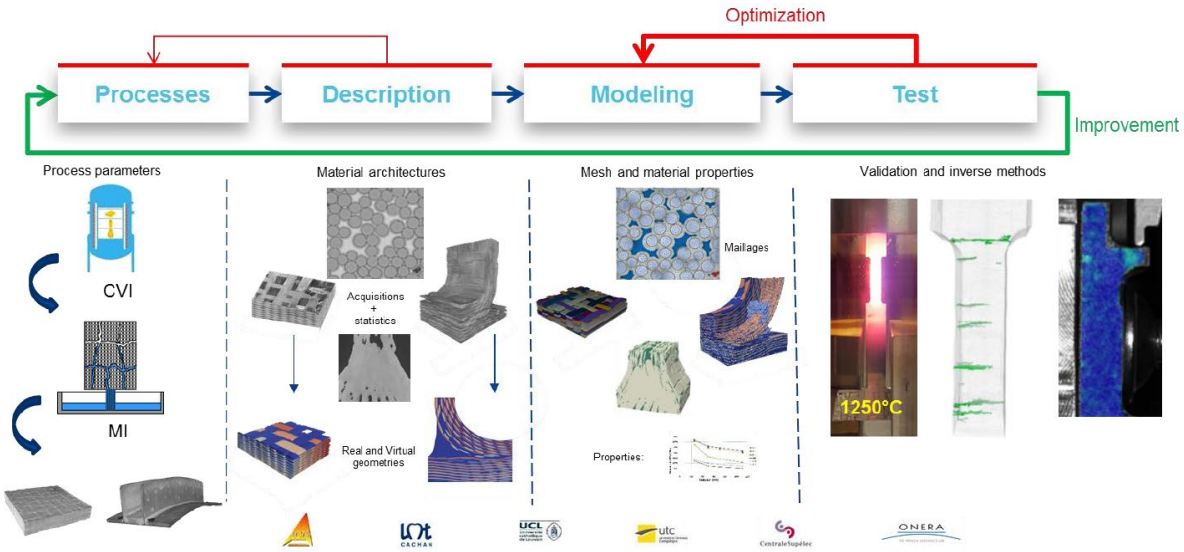

Figure 1 – Multi-scale studies framework

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