MECHANICAL AND FATIGUE PROPERTIES OF SINTERED NANOTUBE-BASED FUNCTIONALLY GRADED MATERIALS

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Summary

This PhD project is concerned with development and assessment of metallurgical, mechanical and fatigue properties of nanotubes functionally graded metal matrix composites obtained by powder metallurgy.
The gradient will be obtained by a variation on nanotubes volume fraction from bulk part to surface of the specimen, where the volume fraction is lighter.
This work will focus on processing conditions as well as on its influence over the material metallurgical properties and mechanical and fatigue mechanisms (crack nucleation and propagation). This study results are intended to be used in fatigue theories in order to predict fatigue initiation life of automotive components. The research consists on experimental work with specimens obtained from different processing routes.