

Microwave Microscopy for Advanced and Efficient Materials Analysis and Production

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Word from Gilles Dambrine, project coordinator

During this first year, the project made important progress on all its objectives. Among all of them, we can mention: integration SMM/SEM is now effective; first materials composing the devices were identified; three common user cases of industrial measurement systems have been agreed and defined for further simulation development; finally the structure of the open innovation platform has been detailed.

Complementarity to partners from instrumentation to products through materials, characterization and modeling show a great efficiency and enthusiasm. I have the pleasure to present you one of the partners and its implication in the project, Adamant.

Adamant Composites Ltd. is a Greek high-tech industrial SME providing solutions on Innovative Materials, Composite & Advanced Manufacturing and Space Systems (Deployable Structures). Its cutting-edge manufacturing hub offers cost-effective Build-to-Print Autoclave Composites and Advanced Product Engineering. The company has a strong competence in nanotechnology and composite materials and develops novel nano-enabled semi-finished and finished products such as prepregs, adhesives, coatings, electrodes and 3D printing filaments, with tailored properties including fracture, electrical and thermal. More specifically, FXplyTM prepreg technology introduced by Adamant Composites is used to produce CNT-treated prepregs by treating commercial prepreg materials using tailored CNT-formulations. Finally, graphene-based electrodes developed by Adamant Composites have showed significant improvements in the performance upon their introduction in conventional energy storage systems like Li-ion and Li-air batteries.

Adamant Composites' role in MMAMA has two aspects: providing material samples from nanoenhanced electrodes and nano-enabled (functionalized) prepregs and the resulting composite parts, which serve as test samples for the development phase of the SMM technology; then installing the developed SMM technology in both the production of the nanoenhanced electrodes for energy applications and the roll-to-roll pilot line of the nano-enabled prepregs. The goal is to assess how the developed SMM technology performs in an industrial, in-line, continuous mode and how the combination of SMM with electrical conductivity measurements can assist the further development of the nanoenhanced electrodes and the robust and qualitative production of functionalized prepregs. This way Adamant Composites helps in both the advancement of the SMM technique and its industrialization, while receiving valuable aid in improving its products.

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M6 meeting, 16 May 2018, at METAS, Wabern



Ongoing and next steps Participation in:

•5th IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling Optimization, NEMO 2018, Reykjavik, Iceland, August 8-10, 2018

• European Microwave Week, Madrid, Sept. 24-28th

•7th KO-EU NanoWorkshop 12th November Seoul

To register in MMAMA's diffusion list, please contact Jetta Keranen ikeranen@ayming.com



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