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BALANCE of Plant Components
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INN·BALANCE
AUTOMOTIVE FUEL CELL

INTERVIEW WITH THIBAUD MOUTON, NEW INN-BALANCE PROJECT COORDINATOR AT FUNDACION AYESA

Spring has sprung and also new things are blossoming in INN-BALANCE: Thibaud Mouton took over the role of INN-BALANCE project coordinator at Fundacion Ayesa. In this interview he talks about the upcoming tasks and his vision for the project.

INN-BALANCE: *Thibaud, you recently joined the control system lab at Fundacion Ayesa. Would you mind to share with us a little bit more about your professional background and what has brought you to the INN-BALANCE project?*

After working several years in the field of simulation software, I wanted to work on different engineering challenges. I am very interested in the problems that our world is facing, such as the provision of the high amount of energy that is required by the modern demand of transportation.

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This energy must be provided to the users as “clean” as possible and hydrogen is one of the most promising media that exists so far for that purpose. Nevertheless, usage of hydrogen is still an engineering challenge in vehicles, because the reliability, the efficiency and the cost of the conversion unit must be improved to see a wide adoption of this technology. By tackling these problems, the INN-BALANCE project is trying to bring solutions to one of the important problems of our era.

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Thibaud Mouton took over the coordination of INN-BALANCE from Dr. Alicia Arce

INN-BALANCE: What do you find most exciting about INN-BALANCE?

Technically, many aspects of the INN-BALANCE project are exciting because it is at the crossroad of several specialties. Also, articulating the parallel development of all these subsystems from scattered places is challenging but very interesting. I am especially fascinated to see all these pieces of high technology progressively assembled to create what could be an important part of the next generation of zero emission automotive propulsion.

INN-BALANCE: Within the last two years the INN-BALANCE activities showed a lot of progress. The project achieved significant milestones of its work plan such as realizing an optimized, highly efficient turbo compressor and an overhauled thermal management. What will be the next challenges on the road towards cost-efficient hydrogen mobility powered by INN-BALANCE?

First, I want to mention that a lot more has been done so far. For instance, the hydrogen injection system with a careful design to reduce the consumption has also reached a highly mature status, after challenging issues successfully addressed by our partner AVL. The thermal management system that is implemented by DLR was also a difficult task and, among other things, they managed to develop a strategy to reduce the degradation of the fuel cell in freezing conditions, which is an important issue for an automotive application.

Moreover, we are reaching the point where the full system is going to be tested and integrated in a vehicle. It is now a question of months and not anymore years as at the beginning. We are going to have the chance to test a prototype of fuel cell powered vehicle that meet several criteria of the market demand. I am really looking forward to the first tests!

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INN-BALANCE: Besides coordinating INN-BALANCE, Ayesa is also leading the development of a simulation tool dedicated to facilitate manufacturing-oriented design of fuel cell components within the project. Can you tell us more about the current status of the tool and once finalized, about what will be its main functions and benefits?

The goal of this task is to develop an optimization framework to provide the redesign specifications of the components and modules assembly to reduce the manufacturing costs.

To that end, the supply chains, manufacturing processes of the main industrial partners of the project and product specifications have been modelled and an optimization framework has been created by considering this model. The phase of analysis of the finalized modules is ready to start and, based on the data that the partners are going to send, strategies to reduce the cost of the fuel cell system in a mass production context will be proposed with the help of the framework.

