PRESS RELEASE

PIRELLI AND POLITECNICO OF MILAN SIGN OFF A NEW RESEARCH PROGRAMME THAT INCLUDES DEVELOPMENT OF TYRES IN VIRTUAL REALITY

A DECADE AFTER THE FIRST PROGRAMME, A NEW AGREEMENT IS SIGNED TO EXTENDS THE SCOPE TO DRIVING SIMULATORS AS WELL

THE TWO-MILLION EURO AGREEMENT TARGETS THE INTEGRATED USE OF SIMULATORS, DEVELOPMENT OF INNOVATIVE MATERIALS, AS WELL AS TECHNOLOGIES FOR SUSTAINABLE AND SAFE MOBILITY

Milan, 2 December 2021 – Ten years after the first agreement, Pirelli, Milan Polytechnic and Polytechnic Foundation have signed off a continuation of the 'Joint Labs' programme, focused on research projects for the continuous technological innovation of tyres. This collaboration will extend for another three years, with new and challenging objectives as well as innovative tools. Pirelli's static simulator, installed in the company's research and development centre in Milan, as well as the dynamic simulator in the Politecnico are now also pivotal to the programme. In addition to enhancing the potential of virtual modelling, this latest chapter of the two-million Euro agreement (from 2021 to 2023) focuses on two main areas of research: materials (with the development of innovative solutions and modelling of mixing processes) and product and cyber development (with integrated static or dynamic simulation and innovative modelling).

Five departments of Milan University are involved in scope of this agreement (mechanics, chemistry, materials and chemical engineering, mathematics, electronics, information and bioengineering, and civil and environmental engineering) and the researchers will be involved in the following areas:

- Simulation: integrated use of static and dynamic simulators with the aim of optimising the development and testing of new tyres, reducing lead times and strengthening collaborations with car manufacturers.
- Materials: modification of polymers, nanofillers, protective tyre materials, new materials with low environmental impact; open source modelling for mixing and modelling of textile reinforcements.
- Product and cyber development: external and internal noise, tyre aerodynamics, automated tread modelling; development and consolidation of models for intelligent vehicle control data, and development of value-added services from the cyber system.

A JOINT COMMITMENT TO RESEARCH AND TRAINING

Over the 10 years of the collaboration between Milan University, the University Foundation, and Pirelli, no fewer than 14 registered patent families have been filed and about 30 articles published in international scientific journals, as well as a number of high-profile presentations

made at international conferences. The topics addressed have been multiple, and the results have been seen in terms of tyre performance, safety and sustainability: thanks to the use of advanced materials identified as part of this partnership. In particular, 15 research grants for young graduates were awarded in the materials chemistry sector. In the last three years, research has mainly focused on the production and functionality of carbon allotropes, preparation of modified silica fibres, as well as studies into alternative sources of natural rubber, synthesis of innovative polymers, and self-repairing materials. In the tyre mechanics sector, 12 research contracts have been activated in the cyber tyre and Formula 1 fields since 2011, with study into the interaction between tyres and asphalt.

An area of particular interest is the study of low-noise tyres for new hybrid and electric vehicles, a key aspect of driver comfort. Innovative testing methods were applied for the indoor measurement of the acoustic field generated by the rolling tyre. Using the Tread Modelling Automation project, the modelling of the tyres and the characteristics of the different summer, winter and all-season tread patterns were studied.

Supporting professional training, the “R&D Excellence Next” postgraduate university Master’s degree was also recently inaugurated. This was conceived in collaboration with Milan Polytechnic, involving 34 young engineers newly hired by Pirelli, in order to train specialized engineers. This is an evolution of the careers that several researchers and doctoral students have enjoyed within Pirelli, in areas such as innovative materials, modelling and cyber, which has contributed to the success of these joint projects over the last 10 years.

A 150-YEAR HISTORY

The relationship between Milan Polytechnic and Pirelli dates back to the very beginning of Pirelli's history, when in 1870, fresh from graduating from the University, Giovanni Battista Pirelli was directed by his teacher – Giuseppe Colombo – towards the chemical industry and rubber production. Giovanni Battista Pirelli became the father of this industry in Italy, founding his company, Pirelli & C, in 1872.

Over the years, there have been numerous collaborations between Milan University and Pirelli, with the aim of capitalising on the synergies between the academic and business worlds. One of these projects from the past was CORECOM (Consorzio Ricerche Elaborazione Commutazione Ottica Milano) from 1995. This was among the first associations between the public and private sectors in Italy and was a leading player in the development of international photonics until 2010.

Ferruccio Rest, Dean of Milan Polytechnic

"Driving simulators, virtual reality and new materials: the keys points of a decades long accord, the one between the Milan Polytechnic and Pirelli, which is being renewed on the basis of shared goals, in step with technological innovation, attentive to sustainable development. These are the elements on which the agreement is based which involves five departments of the institution. The Joint Lab underlines the importance of this long standing and constructive relationship between university and company, one of the keys indicated in the Piano Nazionale di Ripresa e Resilienza. Research and training are the prerequisites for an industrial development that looks to the future. The agreement between the Politenico di Miano and Pirelli is solid and this is the direction we wish to pursue”.

Marco Tronchetti Provera, Pirelli's Executive Vice-Chairman and Chief Executive Officer:

"Innovation is the engine room of our company. Being able to rely on a network including the most advanced research institutions and universities in the world, such as Milan University, means investing to meet the future challenges of mobility. Our priorities with the 'Joint Labs' programme take in all aspects of sustainability, evolved automation,
virtualisation and connectivity, The collaboration with the University underlines our commitment to strengthen the core of our group's know-how in these key areas within Italy."

Andrea Sianesi, Chairman of Milan Polytechnic Foundation

"Pirelli, as well as participating in our birth, was one of the first companies to believe in the Foundation's ability to create synergies in the region, to enhance the scientific research done by the Milan Polytechnic. Today we are talking about sustainable mobility: this agreement aims to consolidate enduring relationships for investments in the long term, which will enable the realization of advanced research with a high level of experimental and innovative content. Strategic partnerships like this create constant dialogue between companies and the university in order to shares needs, strategies an visions".

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