Antonello Cogotti Retires

The long-standing Head of Research and Senior Vice-President of Pininfarina, Antonello Cogotti, retired at the end of February this year. Few people have made as significant contribution to the field of vehicle aerodynamics as he. With uncommon creativity and outstanding contributions, he has given this discipline important momentum throughout his career.

After studies in aerospace engineering and service as a lieutenant in the Italian air force, Cogotti took over as head of the Pininfarina wind tunnel. Already his first piece of work proved to be a resounding success: Together with Professors Morelli and Fioravanti, he developed the research vehicle CNR PF in 1976. Its very low drag coefficient of 0,20 was less than half as large as that of conventional road vehicles of the time.

It is incredible what results Cogotti was able to achieve using the relatively small Pininfarina wind tunnel, which had been designed by Professor Morelli as an Eiffel tunnel. His experimental results were considered particularly good in a comparison with the much larger tunnels of the OEMs. By mechanising the measurement of the flow field behind a vehicle, he was able to obtain significantly deeper insight into the mechanisms that generate drag than was previously possible with just balance measurements. With this technique, the optimisation process could be accelerated and carried out in a much more systematic way.

Cogotti was the first person to simulate the relative motion of the ground and the vehicle, in a full scale wind tunnel, by means of a moving belt between the wheels. The rotation of the wheels was achieved by means of motors integrated into the four wheel pads of the balance. With this solution, it was possible to measure standard production vehicles without costly and time-consuming modifications. A further development of the moving belt, the so-called T-belt, improved the oncoming flow at the ground upstream of the vehicle, an important prerequisite for the investigation of high-speed vehicles with low ground clearance.

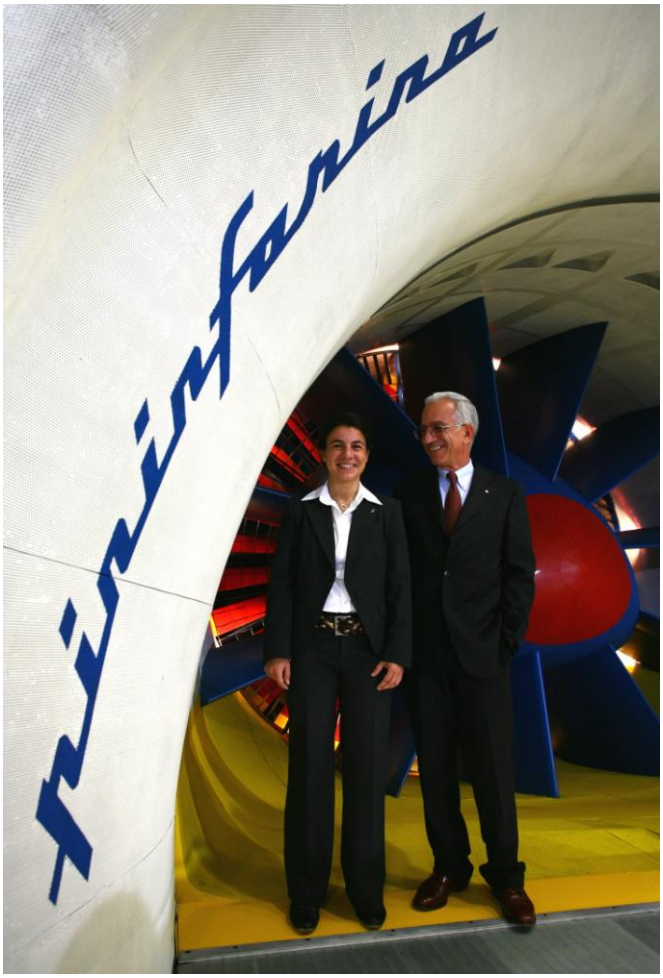
Through the use of an unconventional fan design (with a large number of blades with low loading), Cogotti was able to reduce the initially rather high noise level of the tunnel to 68 dB(A) at 100 km/h. With this value, the investigation of wind noise at subjective levels corresponding to speech comprehension was possible without limitations.

In order to delve deeper into the influence of turbulence on the flow around road vehicles, Cogotti incorporated a cascade of swivelling blades into the nozzle section of the wind tunnel. These enable the simulation of phenomena from the circulation in the wake of a Formula 1 vehicle to large-scale and boundary-layer turbulence of natural wind. Finally, he installed 13 axial fans in the tunnel's open return circuit, which allowed the maximum wind speed to be increased to 260 km/h.

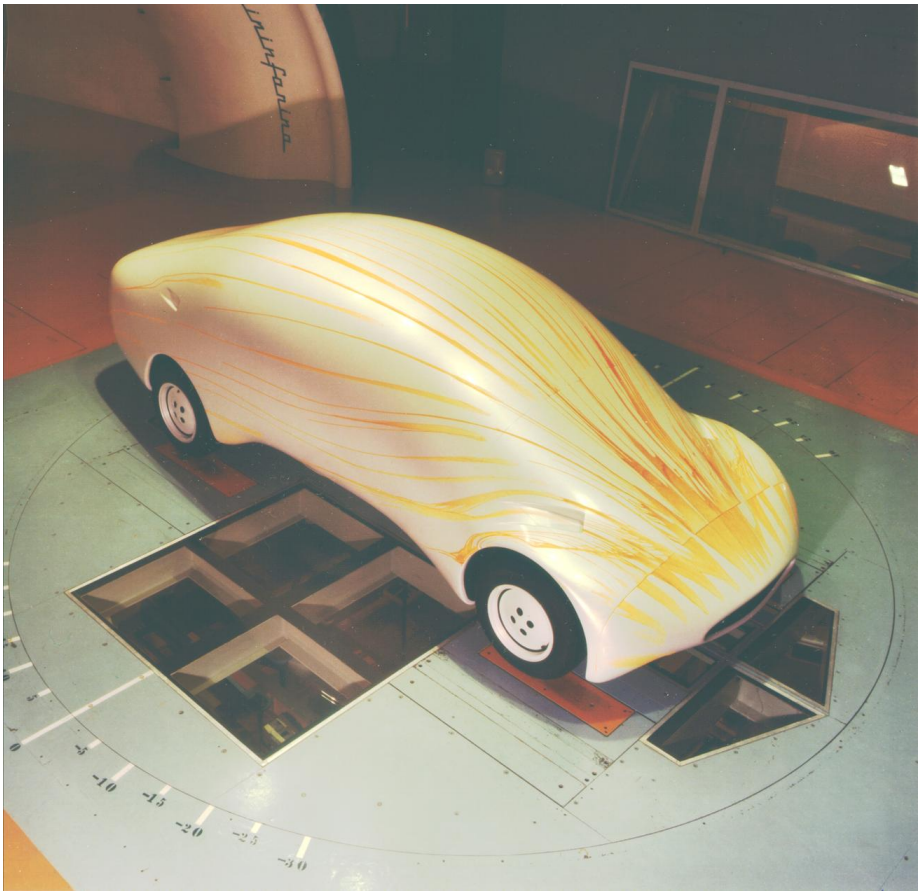
Antonello Cogotti, called "Tony" by all aerodynamicists of the world, made Pininfarina's wind tunnel into a focus of innovation and a centre of cooperation in vehicle aerodynamics. There is hardly an OEM that hasn't been one of his customers. Furthermore, he stimulated the exchange of technical know-how. 55

publications, many of them SAE papers, are a proud testimony of this. Many honours were bestowed on him, including the appointment as Fellow of the SAE.

Tony's colleagues all wish him a peaceful retirement – not without the hope that they can continue to rely on his advice, his expertise and his experience in the future.

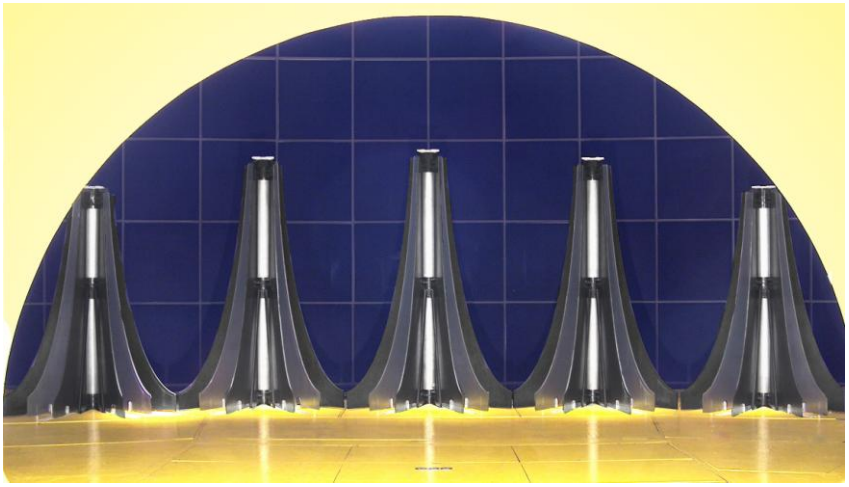


Antonello Cogotti with his daughter, Ing. Francesca Cogotti, who is following in the footsteps of her father.



The research vehicle CNR PF (1976); the wind tunnel was still without moving belt.

View (in flow direction) into the collector and onto the fan; the moving belt between the wheels (orange) is visible.



View (upstream) through the tunnel nozzle into the prechamber. The swivelling blades (black), here shown in their static position, are lowered into the floor when not used (the grey squares indicate the structural supports of the flow-straightener)