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Instrumentation and monitoring of the nextgen road infrastructure: Some results and perspectives from the R5G project

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Through the centuries, the roads - which today constitute in France a huge transport network of 1 millions kilometers length - have always been able to cope with society needs and challenges. As a consequence, the next generation road infrastructure will have to take into account at least three societal transitions: ecological, energetic and digital. The goal of the 5th generation road project (R5G©) [1], led by Ifsttar in France, aligned with the Forever Open program [2], is to design and build demonstrators of such future road infrastructures. The goal of this presentation is to present different results related to the greening of road materials [3], the design of energy-positive roads [4, 5], the test of roads that self-diagnose [6], the design of roads adapted for connected [7], autonomous [8] and electrified vehicles [9], etc. In terms of perspectives, we will demonstrate that the road infrastructures will soon become a complex system: On one side road users will benefit from new services, on the other side such massively connected and instrumented infrastructures will potentially become an opportune sensor for knowledge development in geoscience, such as air quality, visibility and fog monitoring.

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