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Shaping the Wireless World: Intelligent Reflecting Surfaces and the Road to 6G

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As we move beyond 5G, the vision of sixth-generation (6G) wireless networks brings a radical transformation in how we develop connectivity. Future applications—from immersive virtual reality to autonomous vehicles and real-time remote surgery—will demand extreme performance in terms of speed, reliability, and responsiveness. Meeting these challenges requires not just faster networks, but smarter environments. This seminar focuses on Intelligent Reflecting Surfaces (IRS)—engineered surfaces that can control how wireless signals propagate in space—as one of the key technologies shaping the future of wireless communication. We will explore how IRS can help build more adaptive and efficient wireless infrastructures. Emphasis will be placed on how these technologies aim at supporting the most demanding 6G use cases, such as connected autonomous vehicles, and the possibilities offered by the experimental infrastructure available within the Center of Excellence EX-EMERGE at the University of L'Aquila. The talk will bridge concepts from electromagnetism, signal processing, and networking offering an accessible overview of one of the most exciting frontiers in telecommunications.

Room B. Pontecorvo

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IMPORTANT: registration is mandatory for people without a valid LNGS badge (see details on the Indico page)