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Microwave Tunable Materials, Composites and Devices

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The main problem assessed in this project is the increase in the frequency-agility and reliability of modern wireless communications through the use of new efficient materials and composite structures with significantly enhanced characteristics. It is expected that the suggested research will result in both safer and more reliable wireless data transmission. Research objects will comprise bulk, film, and composite materials based on the ferroelectrics and relaxors with improved temperature stability and reduced dielectric loss. The long-term goal of this cooperation between Slovenia, Ukraine and U.K. is the utilization of the developed tunable structures in modern communication systems that will make an impact on the information security level. The implementation of the developed materials and devices will allow substantial enhancement of the frequency agility of currently available communication systems, and give an impact on the further development of new sophisticated designs of microwave equipment including phased array antennas, tunable phase shifters for local radars and GPS receivers or mobile satellite communications and broadcasting.

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