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The weakening of the energy flow of surface waves due to scattering by the roughness

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The stream of elastic energy in a wave extending on a rough surface is calculated. For enough smooth surface attenuation of a superficial wave is defined by the transport time of a relaxation considering of non-essentially processes of scattering on a small corner.

Keywords: energy flow, physics

Balanced geometric model for uplink power control in industrial wireless networks

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Industrial networks now are trying to implement wireless technologies, following the tendencies in communication networks. This task is complicated because of the nature of the industrial environment. Wireless connections hardly achieve the same stable quality of service (QoS) parameters as traditional cable ones. Interference is one of the reasons for that and effective solutions should be developed for its reducing in order to maximize the throughput of the wireless media. Balanced geometric model, which reduces interferences between end-users and access points, is proposed. It is based on Nash Equilibrium Theory and gives opportunity to control the output power of wireless devices in optimal way. The use of vectors in the model helps to analyse in details, impacts between the neighbour points – their power and direction. At the end, there is a sample for using balanced geometric model in industrial network.

Keywords: interference, Open-loop, closed loop, uplink power, industrial networks