



What can we learn from fast measurements in the solar wind?

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The paper reviews latest results from data analysis of the BMSW instrument onboard the Spektr-R project. The main advantage of these measurements is their time resolution that can reach 32 Hz. In the paper, we concentrate our attention on different solar wind properties like the plasma turbulence, helium abundance, and on interplanetary (IP) shock features. We discuss: (1) interplanetary shock ramp scales as seen in different plasma moments, (2) upstream and downstream ion flux wave trains of low-Mach number IP shocks and their comparison with magnetic field waves, (3) direct observations of solar wind turbulence at and below ion kinetic length scales with different frequency spectra of the density, velocity, and thermal velocity, and (4) changes of the proton/helium ratio on various time scales as an indicator of the source of the currently observed solar wind stream.