Giant pulse phenomenon in radio pulsars

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Giant radio pulses are explained in terms of propagation effects in a plasma of a pulsar magnetosphere. Occasional giant amplifications of pulsar radio emission are attributed to intensity transfer towards higher frequencies as a result of induced scattering by plasma particles. It is demonstrated that the statistics of giant pulse intensities observed can be reproduced if one takes into account pulse-to-pulse fluctuations of the plasma number density and original radio intensity. Polarization properties of the strongly amplified pulses, their location in the average pulse window and the origin of the nanostructure will be discussed as well.