



Fiber fine structures superposed on the solar continuum radio emission near 3 GHz

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On April 21, 2002, a broad solar radio burst was observed at about 01:00-03:00 UT with the 2.6-3.8 GHz digital spectrometer of National Astronomical Observatories of China (NAOC). Many fiber fine structures superposed on the solar continuum bursts were also detected in the same interval. Using wavelet transform and threshold processing, the background of the original data was subtracted and the fiber structure was separated clearly. Then some parameters of the fibers such as frequency drift rate, duration, bandwidth and relative bandwidth were estimated. The typical values of frequency drift for those fibers were from -0.0410 to -0.0138 GHz/s. A theoretical interpretation for the fibers is based upon the model of a magnetic-mirror loop configuration in the solar corona. In this model, the source of the fiber emission is considered as the ducting of whistler solitons within the magnetic-mirror loop.