Subpulse Structure of Pulsar Radio Emission in the Decameter Range

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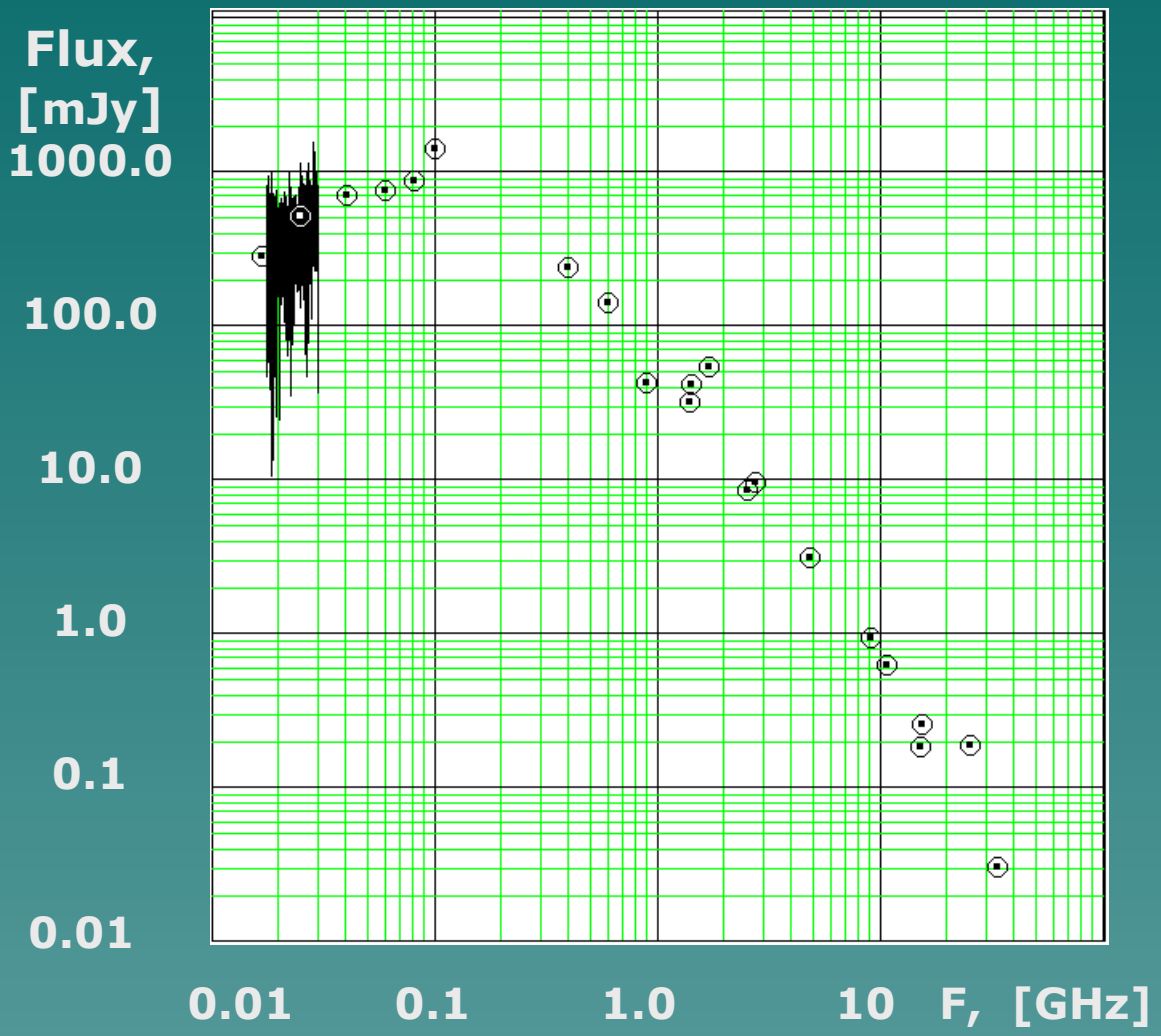
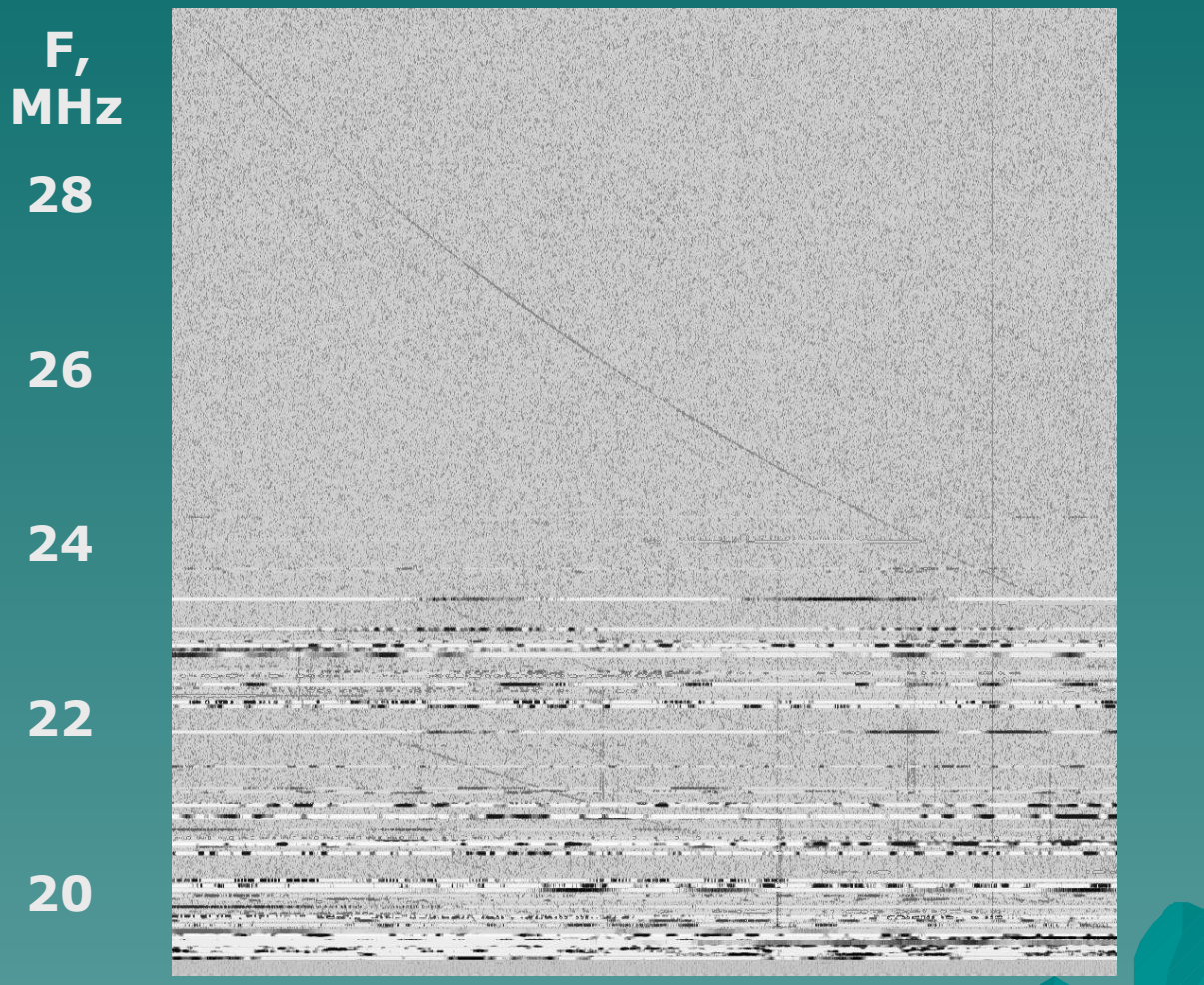
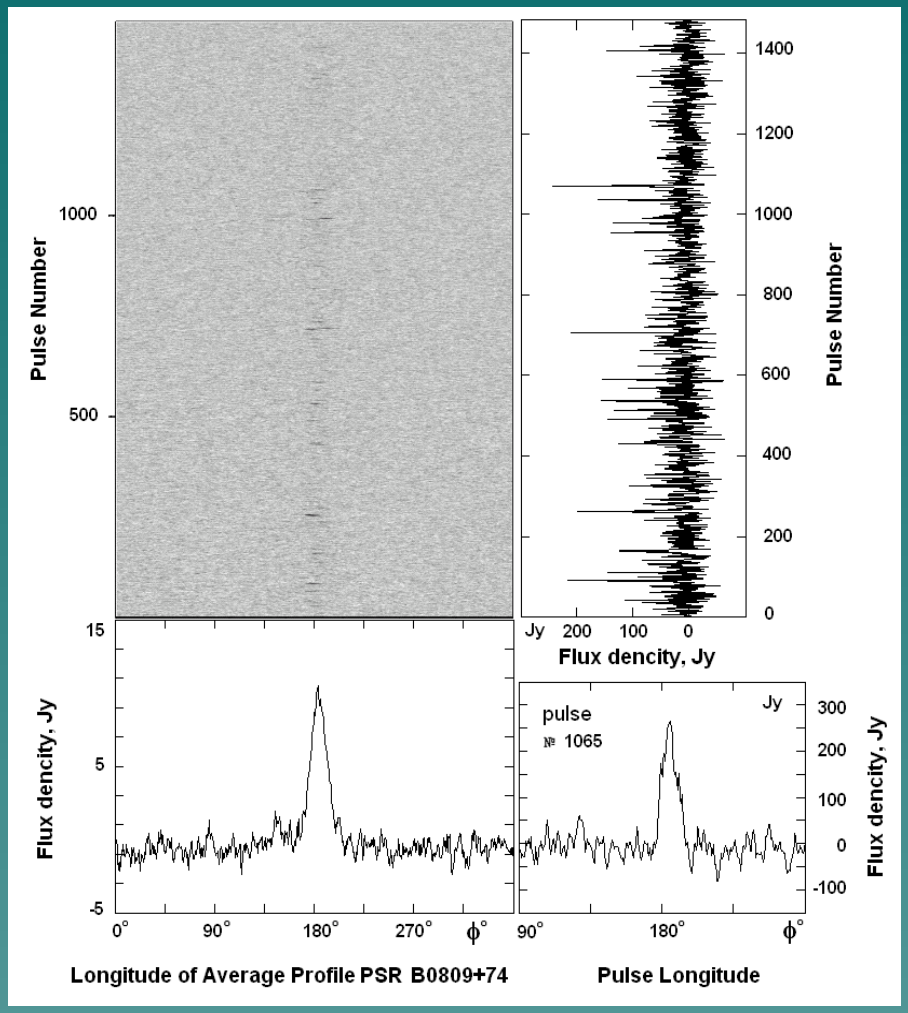
Average Spectrum Flux Density of PSR B1133+16

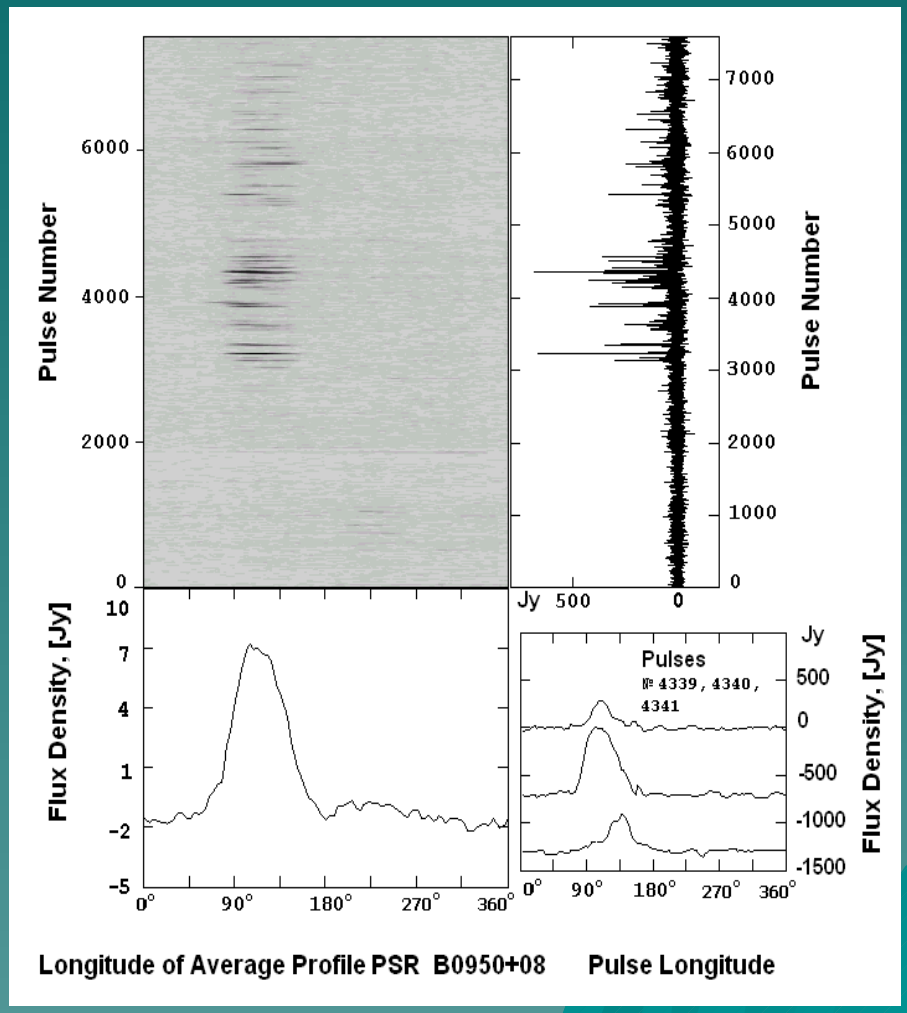


Dynamic spectrum of PSR B1133+16 observed at the UTR-2 RT (Ukraine)

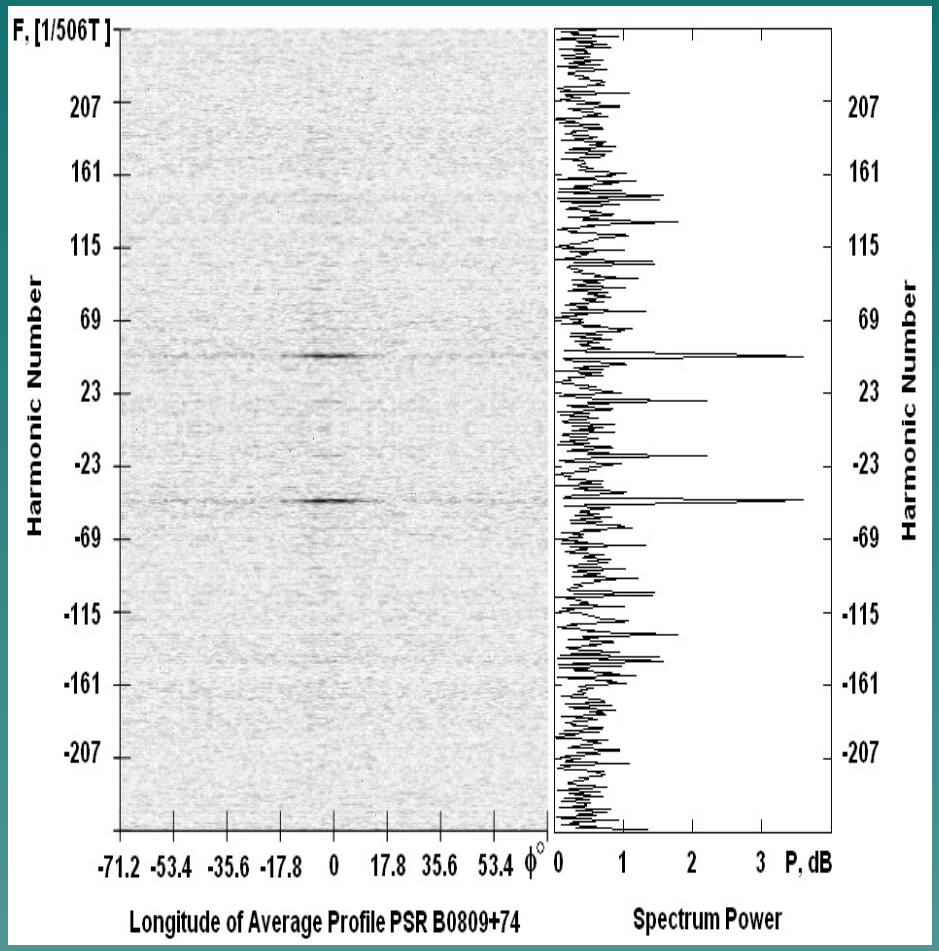


Anomalous intensive pulses in Decameter Range; PSRs B0809+74 & B0950+08

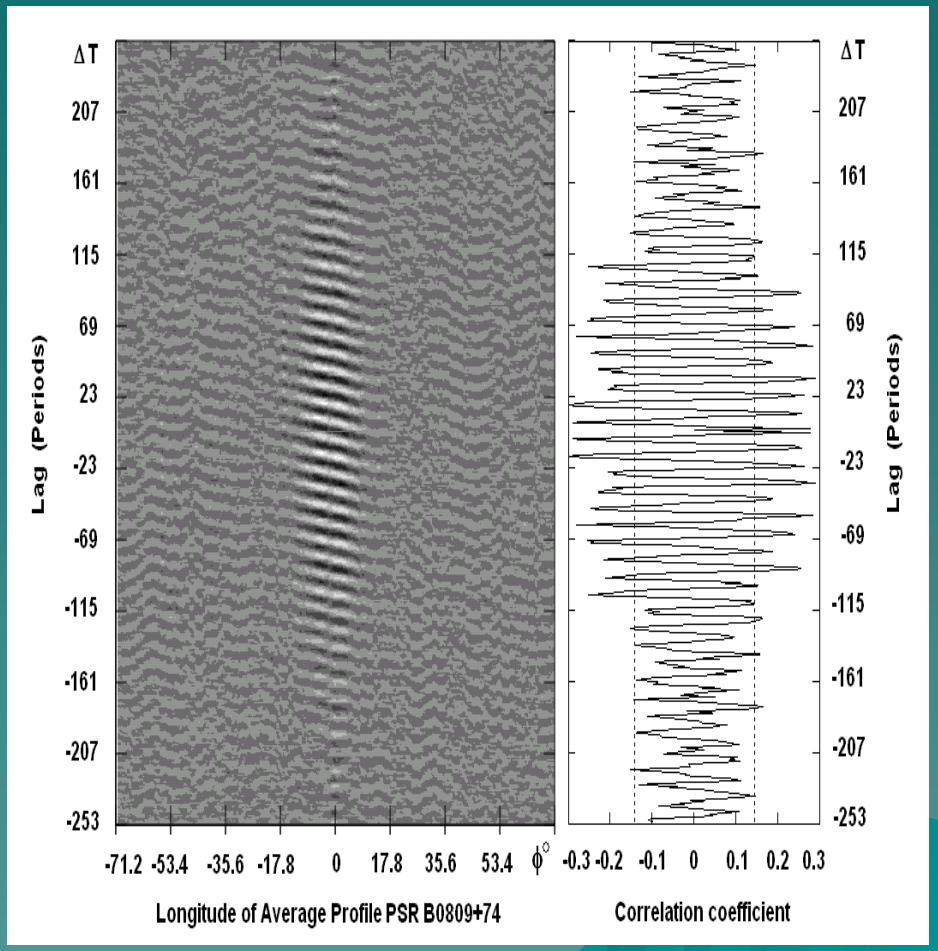




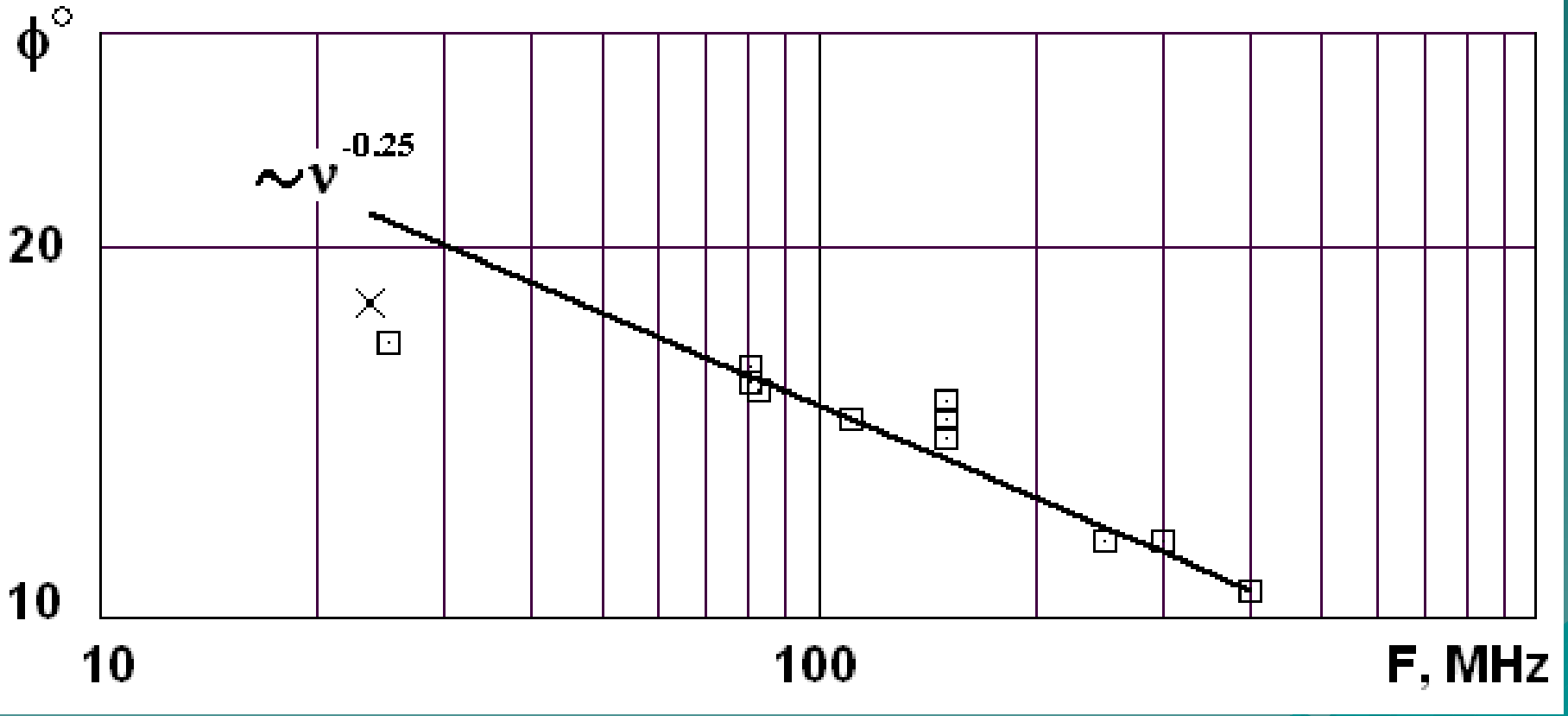
Fluctuation Spectrum of the Individual Pulses PSR **B0809+74** at 24 MHz



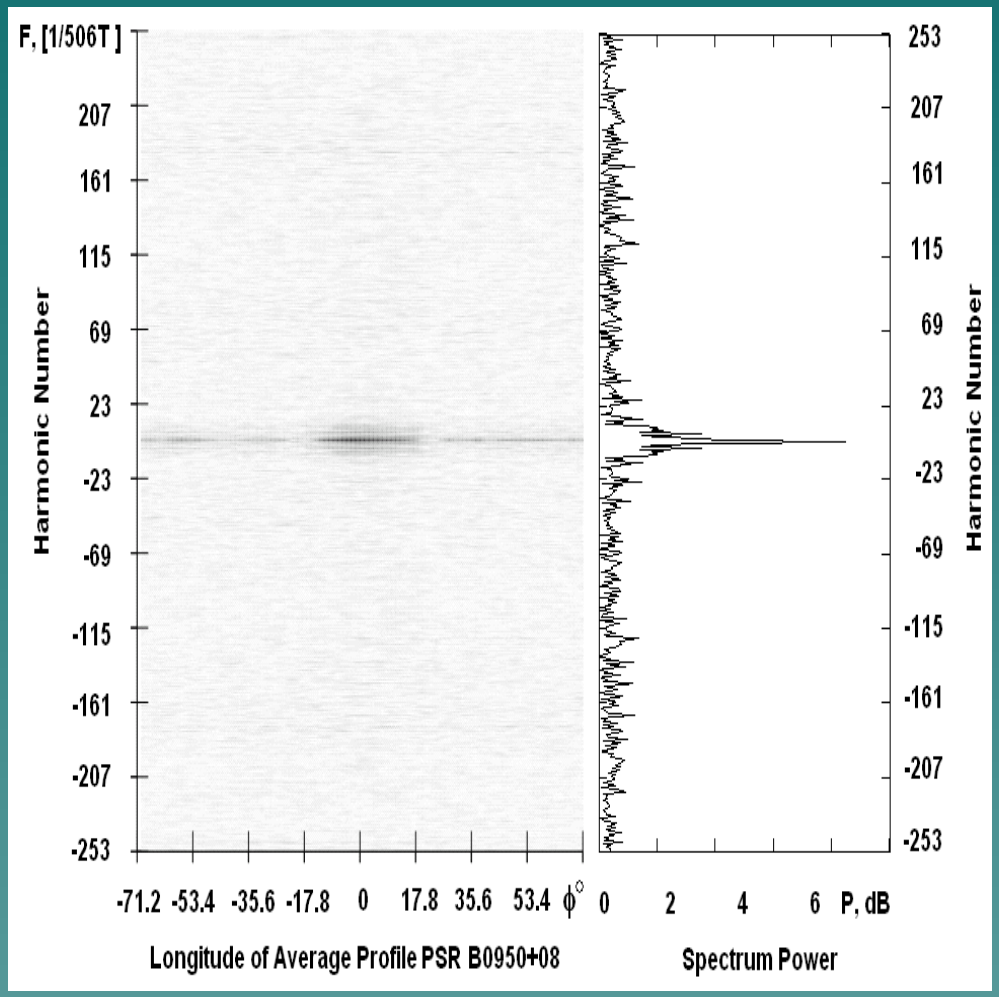
Average ACF with reference transfer function; PSR **B0809+74**

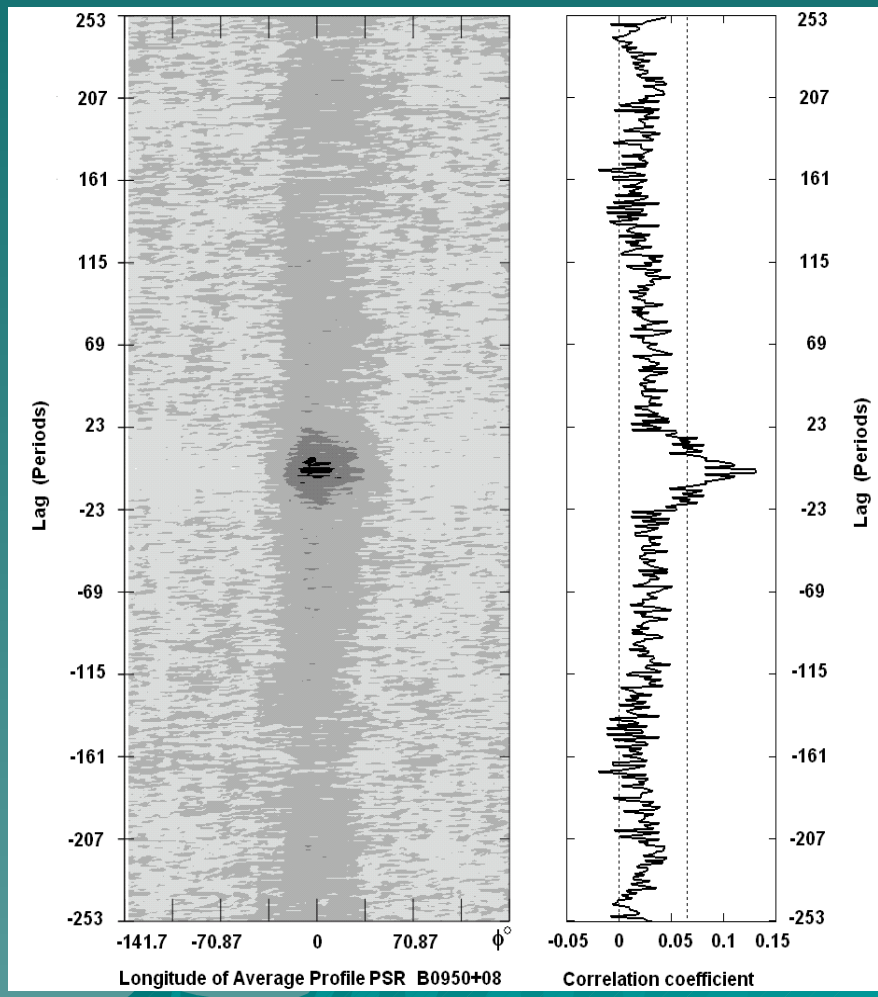


PSR B0809+74
Width of the P_2

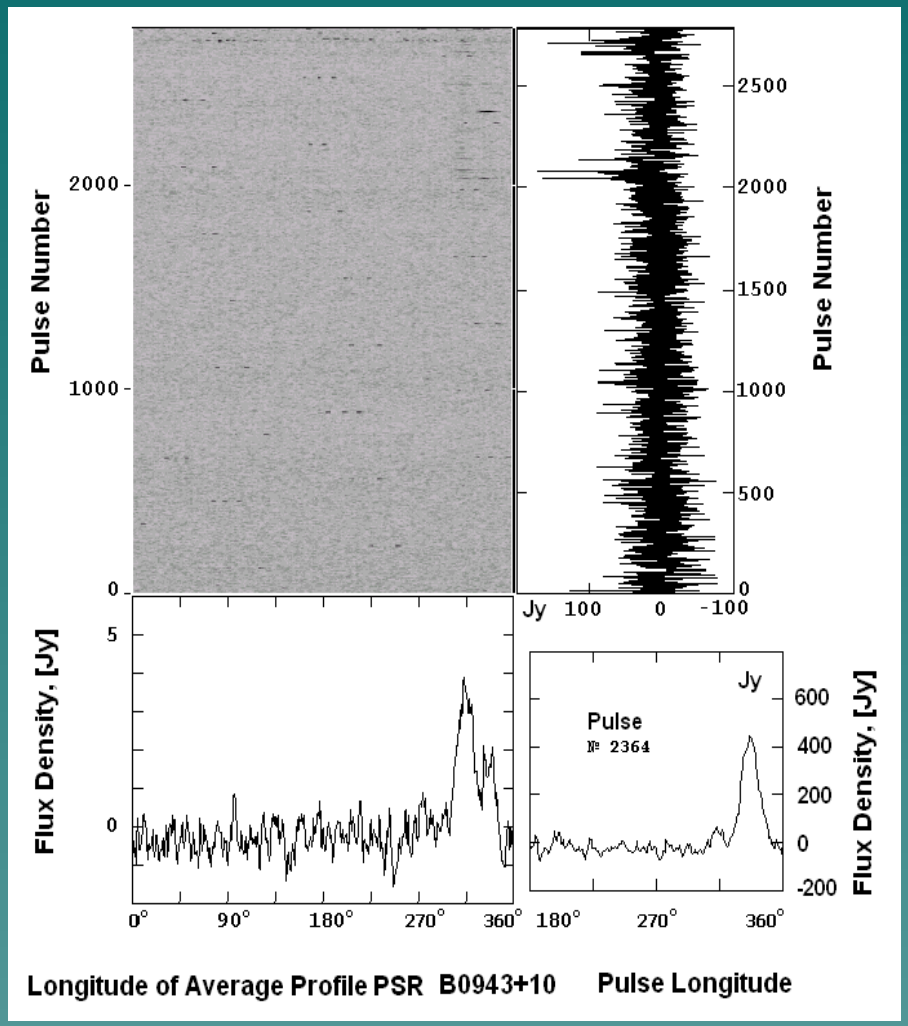


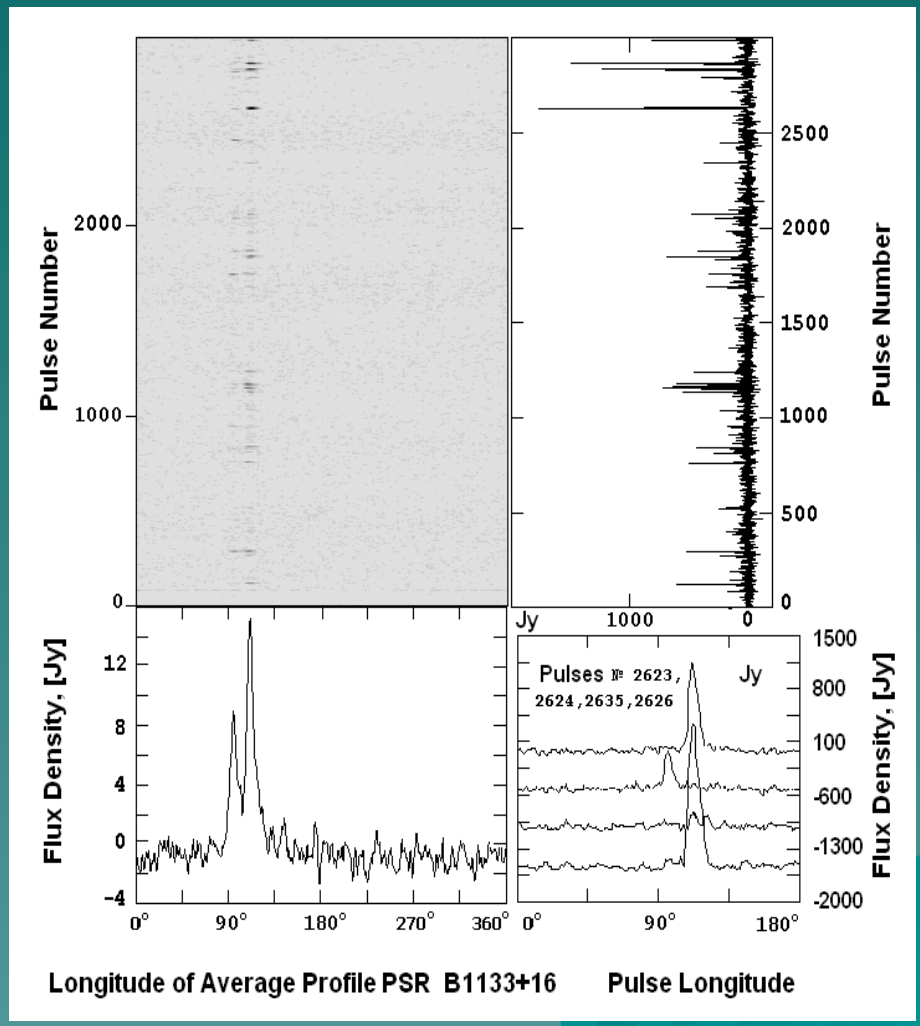
Spectral and Correlation Data analyses of the Subpulse Structure of PSR B0950+08



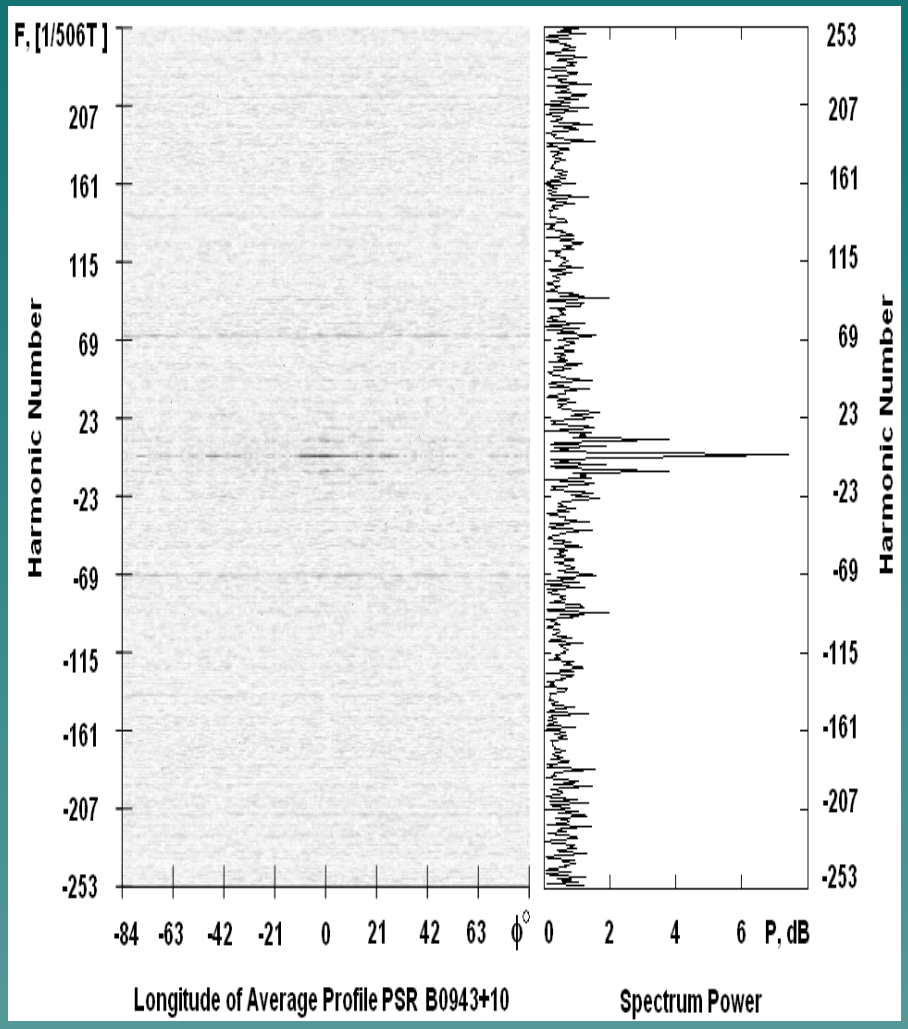


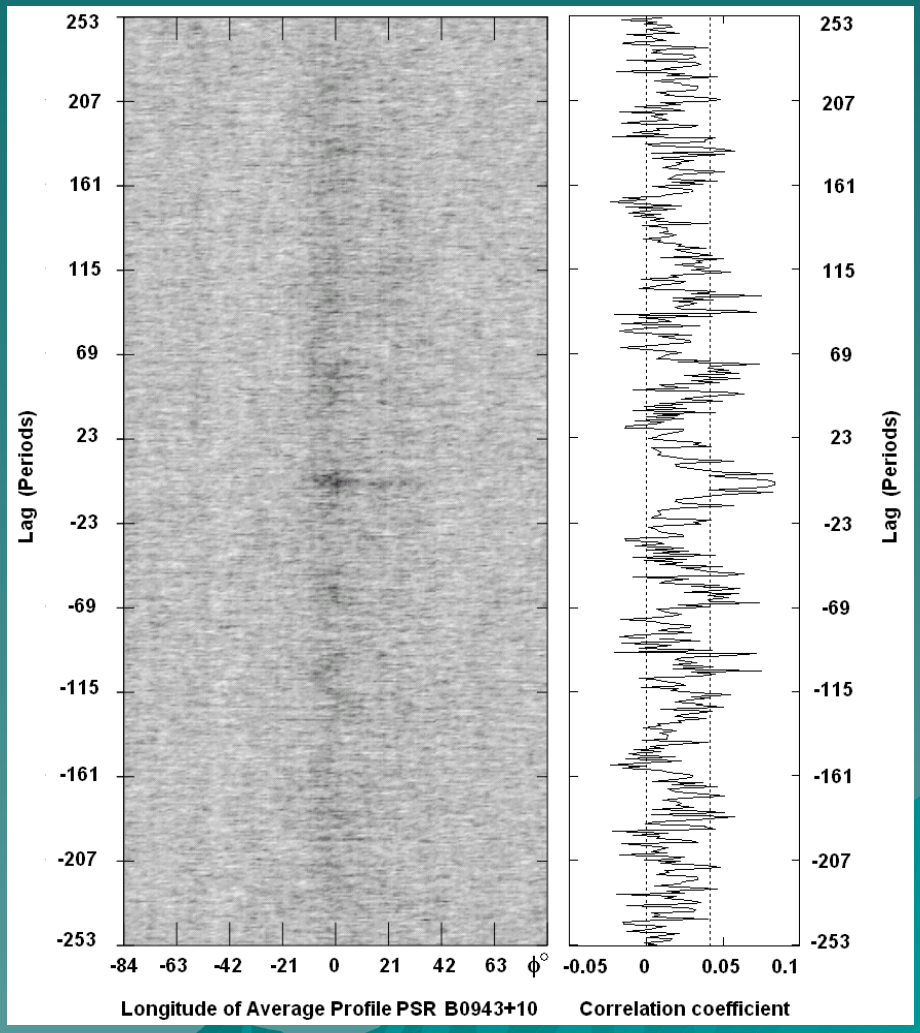
Anomalous intensive pulses at Decameter Range; PSRs B0943+10 & B1133+16



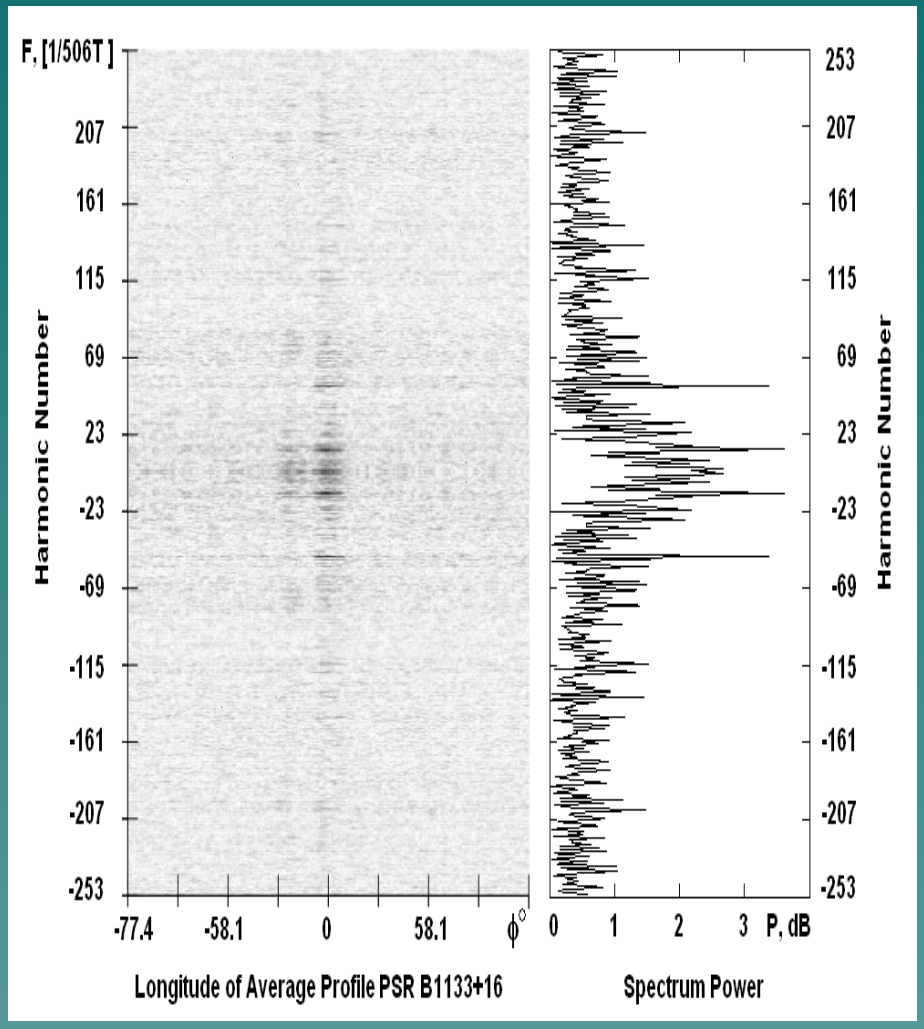


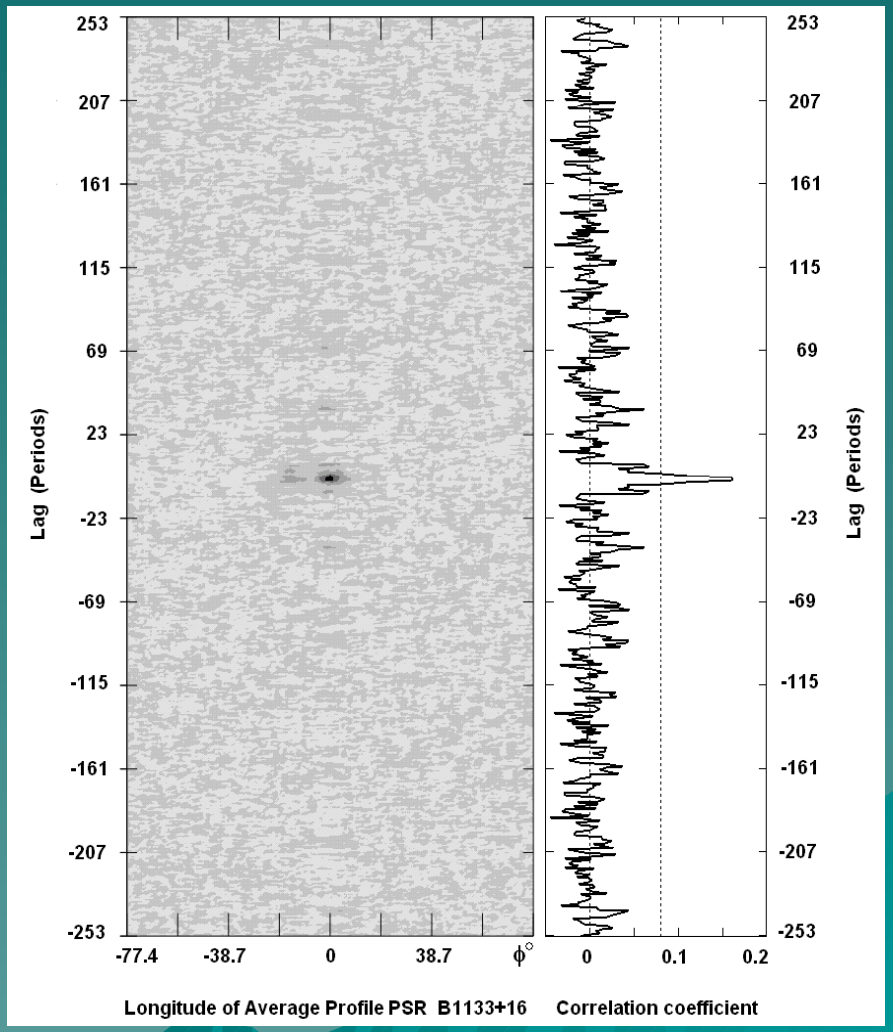
Spectral and Correlation Data analyses of the Subpulse Structure of the PSR B0943+10





Spectral and Correlation Data analyses of the Subpulse Structure of the PSR B1133+16





Conclusion

- The subpulses of the four pulsars (PSR B0809+74; B0950+08; B0943+10; B1133+16) were found at Decameter Wave Range (18-30 MHz).

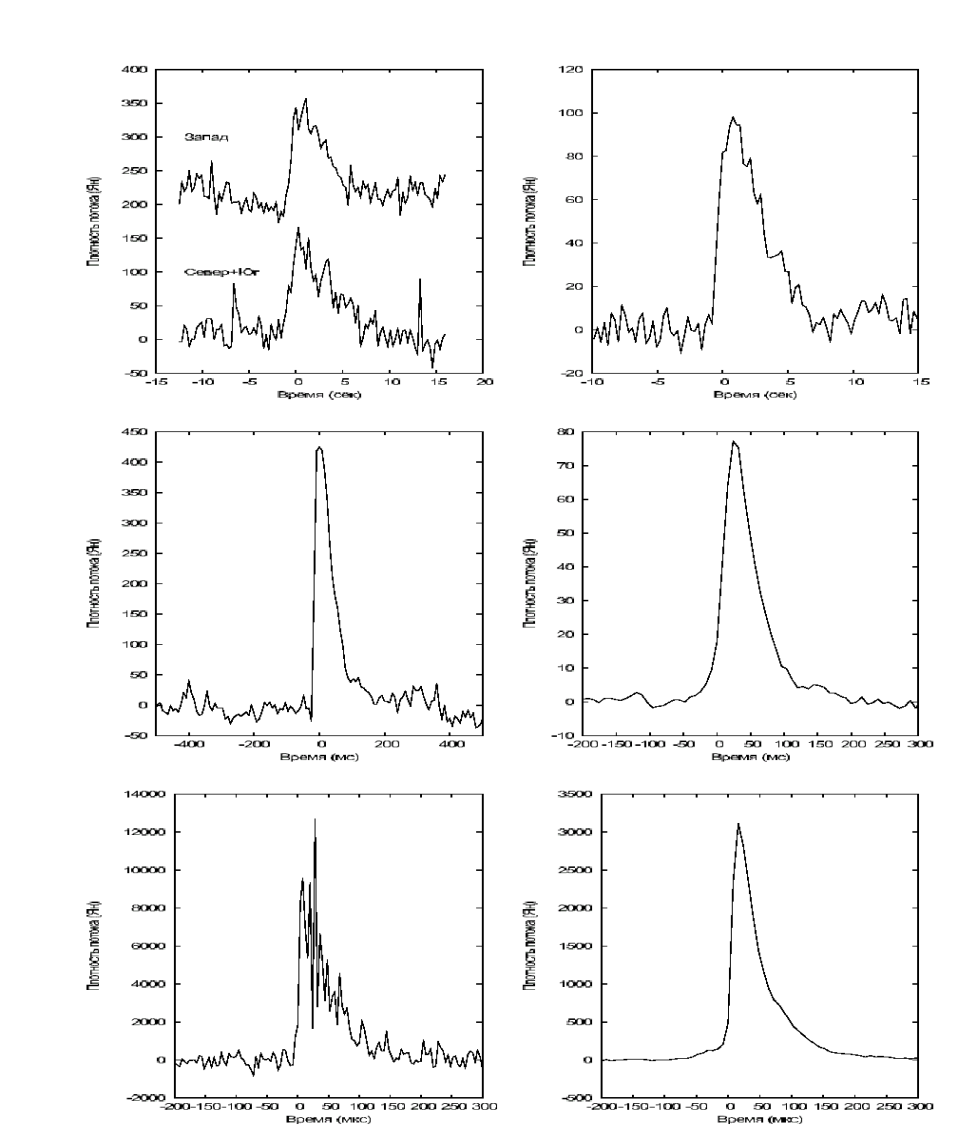
- The radio emission of the anomalous intense pulses is caused by the strong subpulses that have peak intensity of more than 20-100 times larger than peak intensity of the corresponding average profiles. The intensity of the single pulses has a strong frequency and time variation. The detection probability for the anomalous intense pulses does not exceed several percents at Decameter wave range.

- Typical detected band values for the pulses with anomalous intensities lie in the range from 0.2 to 0.5 octaves. The analysis of the results obtained allows one to assume that pulses with anomalous intensity may have relatively narrow generation mechanism in the low frequency range.

- Practically, the energy properties of these pulses do not differ from energy properties of the so-called Giant Pulses, which were detected for millisecond pulsars earlier.


The END

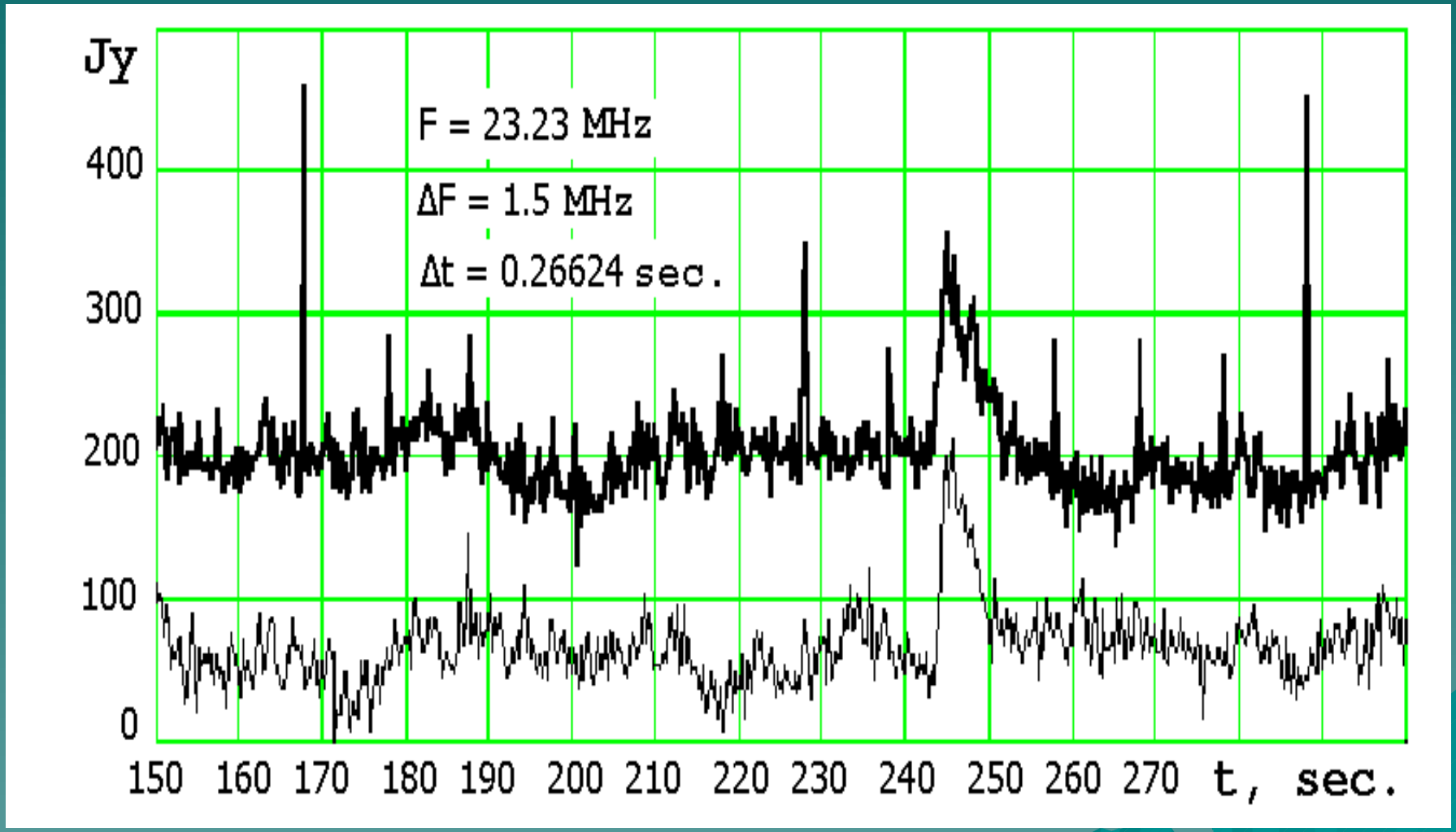
Giant Pulse Profiles at 24, 112 & 600 MHz [ASC FIAN (Russia), IRA (Ukraine), RRI (India)]



Crab

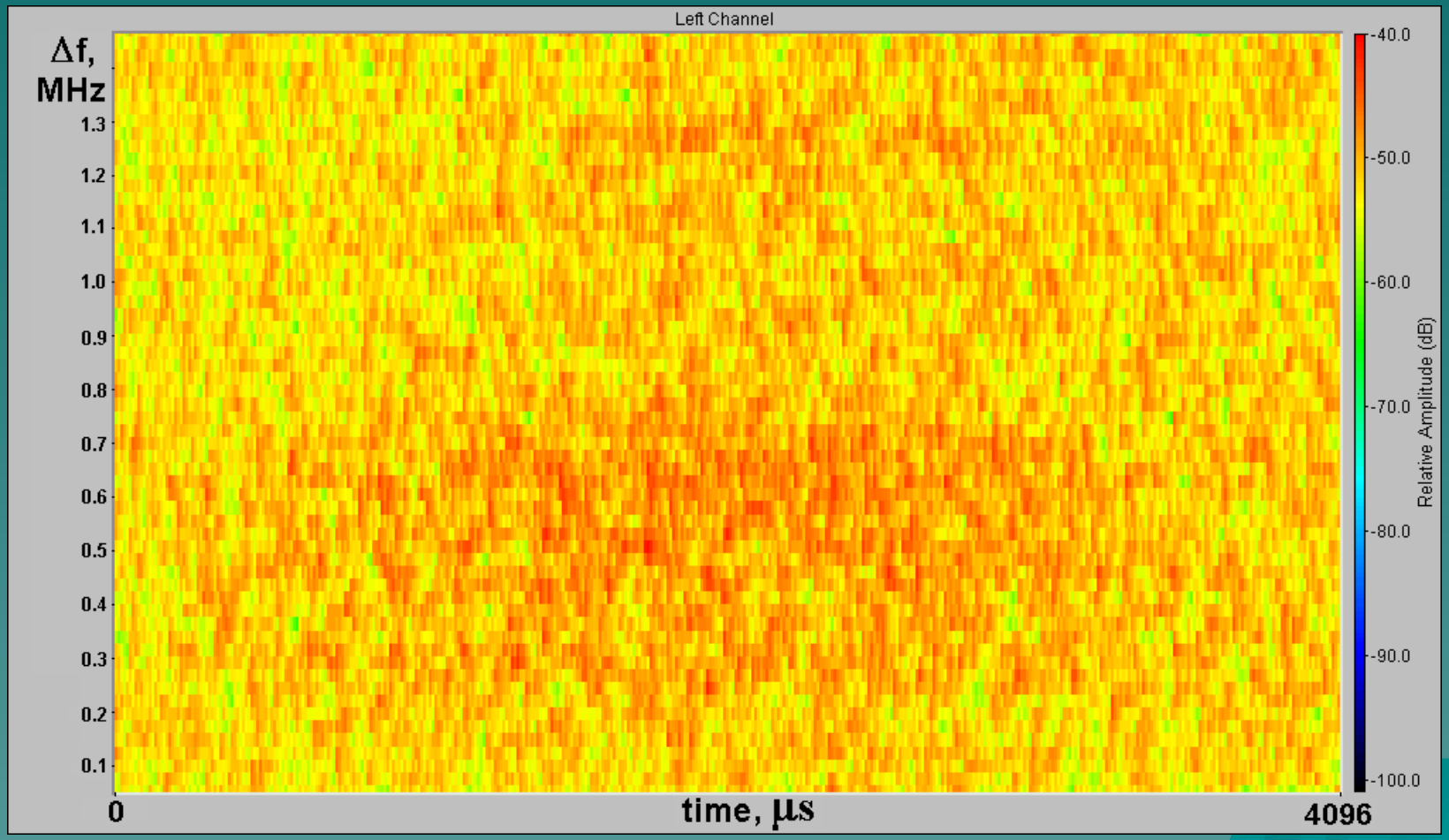
The Giant Pulse of the Crab Pulsar; UTR-2 (Ukraine)

f=23 MHz; DM = 57.6 pc/cm^3

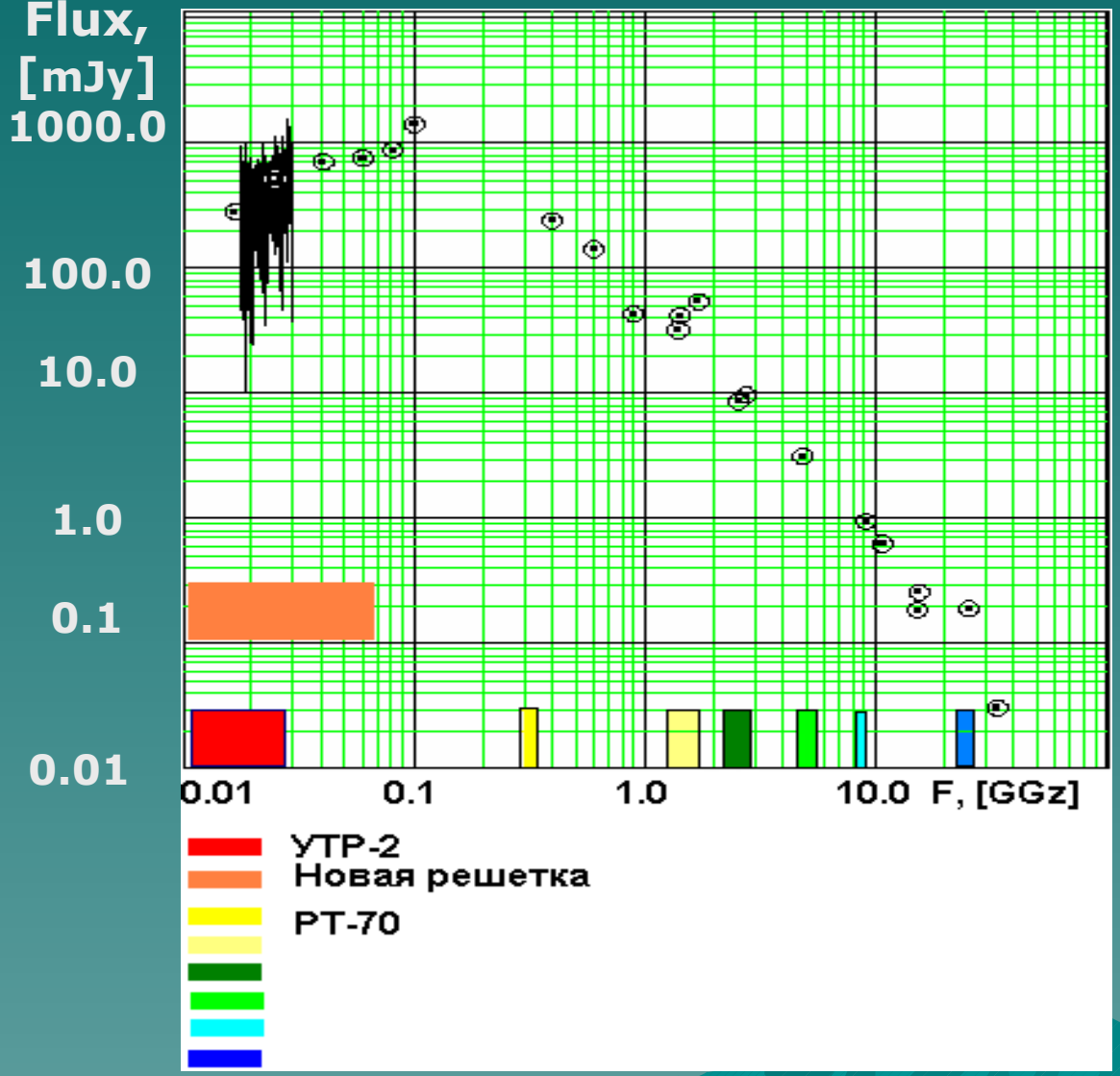


Micro pulses of the PSR B0809+74

fc = 24 MHz; $\Delta F = 1.538$ MHz; $\Delta\tau = 40$ us



The IRA NASU plan of expansion into the different Radio wavelength ranges



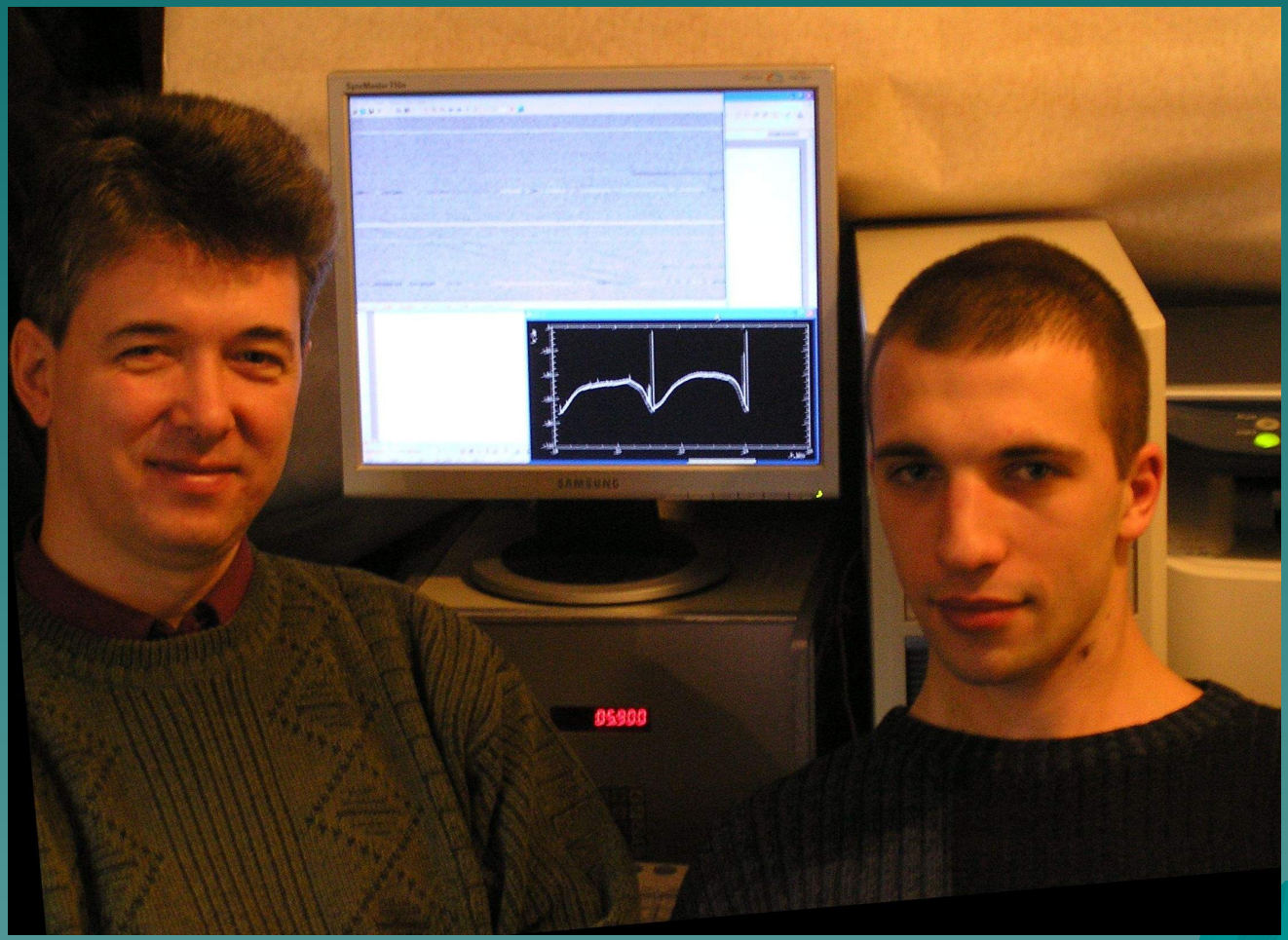
First attempt of the Expansion to 327 MHz and 6 cm ranges; RT-70 (Evpatoria, Crimea) PSR B0329+54

6 cm = 5 GHz

?

92 cm = 327 MHz

The designers of the Portable Pulsar Receiver



22 November 2006


The end indeed!