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1652 pulses from FRB 121102

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With FAST, we detected 1652 pulses from FRB 121102 within a time span of 57 days and a total of about 50 observing hours. On two separate days, the peak burst rate reaching beyond 115 bursts per hour. The burst energy spans three orders of magnitude between ~5e36 to 6e 39 ergs. Tests with a hybrid of real and simulated bursts show that this burst set is 90% complete for E> 3 e37 ergs. The burst rate-energy distribution has a robust peak around 5 e 37 ergs and can be well described by a bimodal distribution, namely, a log-normal at low E plus a generalized Lorentz-Cauchy function at high E. We found no periodicity nor quasi periodicity between 1ms and 1000 s. Assuming reasonable beaming factors, the total energy of this burst set would constitute a significant portion of the total available energy of a magnetar. For active repeaters, the pulse generation has to be economical and the energy source is unlikely a single compact object.

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