

Dear Professor Stappers,

We are writing in support of continuing Jodrell Bank Observatory's regular timing of the Crab pulsar with the 42' radio telescope. Here follow some reasons that we believe justify the effort this represents.

First, the Crab system continues to surprise us. Every few years, the Crab yields some unexpected discovery, at some wavelength, at some scale ranging from the neutron star to the filaments in the supernova remnant. Recent examples are the TeV pulsed emission, and the variability in the synchrotron emission. Invariably, these discoveries trigger advances in theoretical modeling, observations across the electromagnetic spectrum, and extrapolation to populations of systems with properties akin to the Crab's. Invariably, the question arises "was the pulsar doing anything unusual at that time?" and the answer is generally provided using the archival observations made at Jodrell Bank. Astrophysics is steadily moving towards time-domain studies where sensitive instruments survey large swathes of the sky; the likelihood of discovering unknown transient phenomena is increasing with time. This makes constant Crab monitoring more useful than in the past, not less.

In addition to transients on short time scales, the sustained frequent Crab monitoring is unique in all Science: Jodrell Bank observations cover 3% of the elapsed time since the precursor star exploded 959 years ago! This young system is not necessarily stable nor unchanging. As long as Jodrell Bank continues to sample its behavior over decades, the possibility of seeing subtle long-term evolution in the system is enhanced. The continuity and uniformity of the observation database is precious in this regard.

Our own work centers on GeV gamma-ray observations with the *Fermi* satellite. Absolute phase accuracy when comparing pulse profiles from space-based and ground instruments is essential for physical interpretation, and we apply many independent methods to cross-check multiwavelength timing. The sustained JBO Crab timing is a key link in this chain, providing a known, reliable long-term fiducial reference. We wish that daily radio observations were conducted on other gamma-bright pulsars in addition to the Crab.

The monthly Crab rotation ephemeris maintained by JBO incites interdisciplinary activity as do few other resources: workers in other fields (example: particle physicists switching to "astroparticle" physics) can be naïve about astronomy, at least at first. If they've heard of anything astrophysical, it's the Crab, and they quickly find out that JBO provides ephemerides. Several "outsiders" have gone on from this entry point to contribute original astrophysics. JBO Crab observations are a beacon to a very broad community.

With sincere regards,

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