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Follow-up of FAST pulsar discoveries

Abstract:
Pulsars are fundamental tools for astronomy and physics. Every single new pulsar has the potential to provide an outstanding laboratory for a wide variety of physics, ranging from a better understanding of the stellar evolution to testing theories of gravity and placing limits on the equation-of-state. The most stable pulsars, who's precision approaches that of atomic clocks, are our only window into the extremely low-frequency ($< 10^{-8}$ Hz) gravitational waves expected from supermassive black hole binaries, which are not detectable by LIGO or LISA (Zoltan et. al 2017).
With the aim of finding the most exciting pulsars (e.g. a pulsar-black-hole binary), the Chinese Academy of Science (CAS), the MPI für Radioastronomie (MPIfR) and the Australia Telescope National Facility (ATNF) have started a major pulsar survey using the giant "Five-hundred-meter Spherical-dish Telescope" (FAST), the world's biggest radio-telescope. Since first light in September 2016, FAST has been undergoing commissioning observations. Already at this early stage, the pulsar survey is producing exciting science by finding new pulsars, demonstrating FAST's unprecedented sensitivity.
The survey using FAST is one of the first science projects at the telescope. It makes use of the drift-scan mode and a wide-band receiver covering from 270 MHz to 1.6 GHz to search for pulsars and radio-transients. The follow-up observations of the promising candidates are carried by the 100m Effelsberg and 64m Parkes radio-telescopes given their the excellent pointing precision, positional and frequency agility.
Up to date, around two dozens of candidates have been confirmed and followed-up by Effelsberg and Parkes. Highlight of the discoveries are millisecond pulsars and binary systems.

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