

A Baseband Receiver Architecture for Medium-N SKA".

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Abstract

The 32MHz and 3GHz IF bandwidths required for LOFAR and SKA respectively are large compared with their input frequencies, making conventional superhet receivers unattractive, especially since many thousand phase-matched units are required. Instead we propose that antenna signals up to 5GHz wide are simply amplified and digitised directly. Polyphase digital filters then provide efficient, identical band splitting, in preparation for beamforming, RFI rejection, signal compression and correlation.