

NANOSATS FOR A LOW FREQUENCY SPACE-BASED RADIO INTERFEROMETER

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During the past decades, astronomy and space physics changed our understanding of the evolution of the Universe in a dramatic way. However, we still lack observations in the very low frequency range from 1 to 30 MHz (wavelengths from 10 to 300 m), which is one of the last unexplored spectral band in radio astronomy. Below 30 MHz, ionospheric fluctuations are severely perturbing ground based observations. They are impossible below 10 MHz. Furthermore, man-made radio frequency interferences are making observations of faint signals even more difficult. Deploying a radio instrument in space covering the low frequency range would open this new window on the Universe and is very promising in terms of science return.

Recent studies are showing that such an instrument could be using nanosatellites. Most of the technology required for a space-based radio interferometer exists, but some is not yet space flight proven. An international roadmap should be proposed to share the technology demonstration steps between the various interested countries.