V138a The Next Generation Very Large Array - Spring 2022

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We present an overview, status, and the future plan of the Next Generation Very Large Array (ngVLA), including the recent scientific and technical activities of the ngVLA study group, which is coordinated by NAOJ in close collaboration with members of the science community. In the past two years, the study group has organized meetings and workshops for the purposes of promoting ngVLA science and synergies with other instruments, resulting in the Japanese ngVLA project book and $\sim$ 30 articles in the ngVLA-J memo series. Technical studies in the area of the antenna, front end, and time/frequency distribution have also seen some significant progress. The study group is actively investigating the possible future contributions toward offering a significant fraction of ngVLA observing time to the Japanese community.

The Main Array with 214 18-m antennas (baselines up to 1000 km) will be placed around the current JVLA site, providing unprecedented sensitivity and milli-arcsecond angular resolution at frequencies from 1.2 to 116 GHz. The Short Baseline Array will comprise 19 antennas of 6-meter diameter and four antennas of 18- meter diameter operating as single-dish telescopes. The Long Baseline Array will consist of 30 18-meter antennas with the longest baseline of 8860 km. The Astro2020 reported a solid outcome for the ngVLA, a significant step toward the start of construction (scheduled to begin in the mid-2020s), and full operation in the mid-2030s.