V105a The Next Generation Very Large Array - Spring 2021

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We present an overview and the current status of the Next Generation Very Large Array (ngVLA), including the recent scientific and technical activities of the ngVLA study group which is managed by the NAOJ along with the members of the science community. A series of workshops and meetings were held in the mid-late 2020 organized by the five Science Working Groups, discussing the new science enabled by the ngVLA with particular emphasis on the scientific interests of the Japanese community. The outcome of these discussion will be articulated in the ngVLA-J memo series.

The ngVLA will be composed of 214 18-m antennas placed around the current JVLA site in New Mexico, USA. This will provide large collecting surface with baselines up to 1000 km, which will translate into unprecedented sensitivity and milli-arcsecond angular resolution at frequencies from 1.2 to 116 GHz, covering the atomic hydrogen line to the lowest rotational transition of carbon monoxide. The array will be complemented with the Short Baseline Array, which will comprise 19 antennas of 6-meter diameter, and 4 antennas of 18-meter diameter operating as single dish telescopes. The highest angular resolution will be achieved by the Long Baseline Array, which will consist of 30 antennas of 18-meter diameter with a longest baseline of 8860 km. The construction led by NRAO begins in the mid 2020's, and the full operation is expected in the mid 2030's.