

Profound Questions, New Answers

The next generation Very Large Array

The next generation Very Large Array (ngVLA) will supercharge our research—both through its unique individual capabilities and through synergistically bolstering the power of current and future next-generation telescopes, taking our understanding of the universe to new heights.

The ngVLA has the potential to uncover answers in key cases, including...

Seeing more occurrences of these phenomena

Studying these phenomena more thoroughly

Tracking black holes, of all masses, in motion in our galaxy

PROBING THE EVENTS THAT MAKE THE UNIVERSE SHAKE

The best way of understanding merging neutron stars—the densest normal matter in the universe—and other powerful events

- Combining the “what” with the “how” and “what’s next”
 - What: Gravitational waves that shake the cosmos when massive objects collide
 - How: By studying their telltale glow
 - What’s next: Tracking the evolution of their surroundings

Deeper exploration to find dozens of molecules intrinsic to star formation and potentially important for life

Studying in detail the chemistry of dense clouds surrounding baby stars

A better understanding of the potential habitability of other worlds

DISCOVERING THE CONDITIONS THAT GIVE RISE TO LIFE IN OTHER STAR SYSTEMS

The intersection of biology, chemistry, and astronomy

- More information as to
- When, how, and where life may form
 - The kinds of star systems where life has a better chance to emerge

With the ngVLA as part of our astronomical observatory ecosystem, we'll learn about these cosmic mysteries—and so much more. What will you look for?

Keep exploring with us. Learn more: <http://ngvla.nrao.edu/>

The potential to see hundreds of nascent solar systems in the process of forming new worlds

CAPTURING THE FORMATION OF ROCKY PLANETS

Will transform what we know about planet formation by showing how solar systems evolve

- From static image to movie
- Into a science of place and time

IDENTIFYING HOW MUCH STAR-FORMING FUEL EXISTS THROUGHOUT THE HISTORY OF GALAXIES

This will give us a more complete picture of galaxy evolution, when combined with:

- How fast galaxies turn gas into stars
- How much material has already become stars

