Welcome to all of you. I'm Bob Cassanova, Director of NIAC. We have an eclectic mix of attendees: physicists, biologist, geologists, engineers, cavers, science fiction authors, and other backgrounds representing a broad cross-section of disciplines and perspectives.

Over the last 2 ½ years, NIAC has selected through peer review, funded and nurtured 46 innovative advanced concepts. If you have visited our website, you would see that these concepts span the realm from below the Earth's surface to the vast, but not empty interstellar distances:

- from a constellation sampling the Earth's atmosphere to probing the frigid waters under the surface of Europa
- from space transportation tethers dancing in space to a plasma bubble propulsion system that rides the solar wind at a mere 50 to 100 km/sec
- other NIAC funded concepts for astronomical observatories may have the potential to image details in the universe that only now exist in our imagination. Indeed, one space based observatory concept is appropriately called "Life Finder".
- We're exploring concepts for human colonies on other planets using habitats above the surface as well as in caves below the surface,
- We're investigating an innovative combination of botany, genomes and nanotechnology,

- and another is looking at the possibilities of entangled pairs for communication.
- And many others that you can view on our website.

As you know, we select the concepts for funding with a two phase process, in which the concepts are initially selected for the Phase I grant for up to $75K. We also give each of the Phase I NIAC Fellows a NIAC cup, like this one. Of course, what they are really after is the cup, not the money!! The next Phase I Call for Proposals is now available and has a due date of February 18, 2001.

While we are recharged by the prospects of many of the NIAC concepts, I don't enjoy dwelling on where we have been; I enjoy the process and journey towards the future. Which proposal or concept is the best? It's the next one. I enjoy the journey; we may have limited time to have an impact, so we need to press ahead quickly with our visions, enjoy the journey and leave a **legacy** of grand ideas for aeronautics and space.

New knowledge is a fundamental wealth that can never by devalued and can ignite a celebration of interpretive discovery. When we rather smugly think that we have reached a final plateau of knowledge or development of a technology or, on the other hand, feel stifled by our interpretation of artificial technical boundaries, it is the perfect environment for innovation, often emerging at the interface of scientific disciplines, to shake us free from our state of complacency or frustration.

More often than not, discovery is a process, not an event.

In this workshop, the NIAC seeks to encourage the process of discovery and to celebrate the thrill of discovery at the interface of diverse scientific disciplines. **This is what we hope to accomplish over the next two days.** We seek to encourage the process of imaginative, visionary discovery as well as credible examination of concepts that result from the discovery process. Our ultimate goal is to leave a legacy of additional grand and revolutionary concepts for aeronautics and space. Some of these concepts will, undoubtedly, be controversial in the present day, but I would rather NIAC be **credibly** controversial than ignored. Controversy and the resulting debate will, hopefully inspire a more vigorous discovery process from our innovators. **Let me emphasize**, our desire is **credible controversy**, not science fiction that has no basis for potential scientific discovery and technical development.

It has been observed that life often congregates at the interfaces of dramatic changes in the environment; for example, near hydrothermal vents in the ocean or in the transition between oceans/lakes and dry land. You may have heard of the discovery of extremophiles in the very harsh environment of volcanic vents in the ocean depths, at this interface of high temperature, sulfuric environment with the high pressure cold water environment. By analogy, we seek these extremophile advanced concepts that may be trying to spring to life and flourish at the interface of scientific, and sometimes harshly defined, disciplines.

An example might be the interface between physics and biology. Of course, many physicists might claim that physics covers everything from chemistry, biology, optics, etc., but for the purposes of this gathering, let's assume that there are some recognizable disciplines that can be brought together for exploration of concepts that may spring to life at the interface.

So just to summarize the intent of this workshop: This is your workshop, your opportunity to be inspired to innovate, your opportunity to debate the possibilities and redefine the possibilities of aeronautics and space. We must have a vision of these possibilities of the future to give more meaning to the present.

Dream big and dare to fail. Norman Vaughn

As you hold your brainstorming sessions, I want you to look with your imagination and therefore with fresh eyes on new possibilities for the future of aeronautics and space.