I'd like to welcome you all to this celebration of the life and career of Bob Sinsheimer. I am Stephen Poole, chair of the Dept. of Molec. Cell and Devel. Biology at UCSB. I first met Bob when I arrived on campus as a new Asst. Prof., and that began a friendship that lasted almost 30 years. For much of that time we had lunch together on weekdays, and our lunch meetings were often the highlight of my day. Bob had an enormous range of interests, from sports to current events, photography, history and politics (did you know that for one of their vacations, Bob and his wife Karen drove around the country visiting Presidential libraries?), and Bob always was a source of deeply thought out considerations of these topics. But above all, Bob had an intense curiosity about science and its ability to inform us about life and our world.

This curiosity was indeed a hallmark of his entire career. He was one of the founders of the field we now call molecular biology, which revolutionized biology in almost the same way that quantum mechanics revolutionized physics. This curiosity served him well through his years at Caltech, his stewardship as Chancellor of UC Santa Cruz, and his years as a researcher here at UCSB. So once again, welcome as we review and celebrate Bob's life and career.

First off, please welcome Bob's son, Roger Sinsheimer.

[Roger's overview of Bob's life]

Hello again. I'd like to now briefly talk about the early aspects of Bob's scientific career. He had an interest in chemistry, and was able to get a scholarship to MIT to study chemical engineering. Right around that time, MIT completely revamped what had been an anemic public health based biology program to one that would emphasize biochemistry and biophysics. Bob switched into a 5 year bachelors/masters degree in this new program.

At MIT, he took a wide variety of engineering, chemistry, and physics classes, which would serve him well in years to come. He took a class in UV spectroscopy from John Loofbourow, and joined his lab for his 5th year research thesis. After Pearl Harbor, Loofbourow was recruited to the highly classified Radiation Lab, based at MIT, which was aiming to develop airborne radar based on the magnetron, a device just invented by the British that served as a source of microwaves. Loofborough then recruited Bob because of his expertise in circuit design, and Bob spent 4 years developing different types of airborne radar, including flight testing the instrumentation, becoming airsick every flight and including some harrowing crashes.

Following the war, Bob returned to Loofborough's lab for his Ph.D. By this time, experiments had shown that in bacteria DNA was the genetic material. While these experiments were not universally embraced at the time, Bob was convinced and began looking at UV absorption of purines and pyrimidines, and

development of a UV microscope to study the absorption spectrum of small areas of cells. Here is is first published paper, in Nature, on a clever method of making spectral filters to get different UV wavelengths.

Following his Ph.D., Bob obtained a position in the Physics Department at Iowa State. He wanted to continue his biophysical studies, and wanted to study the properties of the components of DNA, nucleotides. It is important to realize that this was the dawn of a new era. Nowadays, there is an entire industry to provide enzymes, biochemical, kits for research. Then, Bob had to prepare everything himself. To study nucleotides, he had to figure out how to make them from digests of cow thymus DNA. Here is his first paper from Iowa.

He published a series of elegant studies on mono-and-di nucleotides, but wanted to get beyond the test tube. At the time it was known that viruses had nucleic acids, so Bob started studying Tobacco Mosaic Virus, and showed that the viral particle had a single large RNA molecule within it. Around this time, Max Delbruck of Caltech visited Iowa state and talked about his pioneering work with bacteriophage. Bob was electrified by the combination of genetics and biochemistry available, and took a leave in 1953 to work with Delbruck at Caltech and learn how to work with bacterial viruses. The viruses being studied there were rather large viruses, and when he returned to Iowa, he decided it would be best to study a smaller virus with presumably less genetic material. He focused

on the virus phiX 174, and showed that it indeed was quite small, and worked out methods for cultivating, purifying and analyzing this virus. This was to set the stage for his most celebrated work after he was recruited to Caltech.