

RADIO ASTRONOMY INSTRUMENTATION FOR UNDERGRADUATE RESEARCH

PRESENTER

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WHAT IS RADIO ASTRONOMY?

- **HISTORY**
- **BRIEF DESCRIPTION**
- **CLASSES OF RADIO SOURCES**
- **REASONS FOR STUDYING RADIO ASTRONOMY**
- **OVERVIEW OF RESEARCH**

HISTORY

- **1931- KARL JANSKY - BELL LABORATORIES**
STUDYING RADIO FREQUENCY FROM STORMS
- **1937 - GORTE REBER - PROTOTYPE**
PUBLISHED RADIO SKY MAP IN 1944
ONLY RADIO ASTRONOMER UNTIL
END OF WORLD WAR II
- **1965 - PENZIAS AND WILSON - 2.7 K**

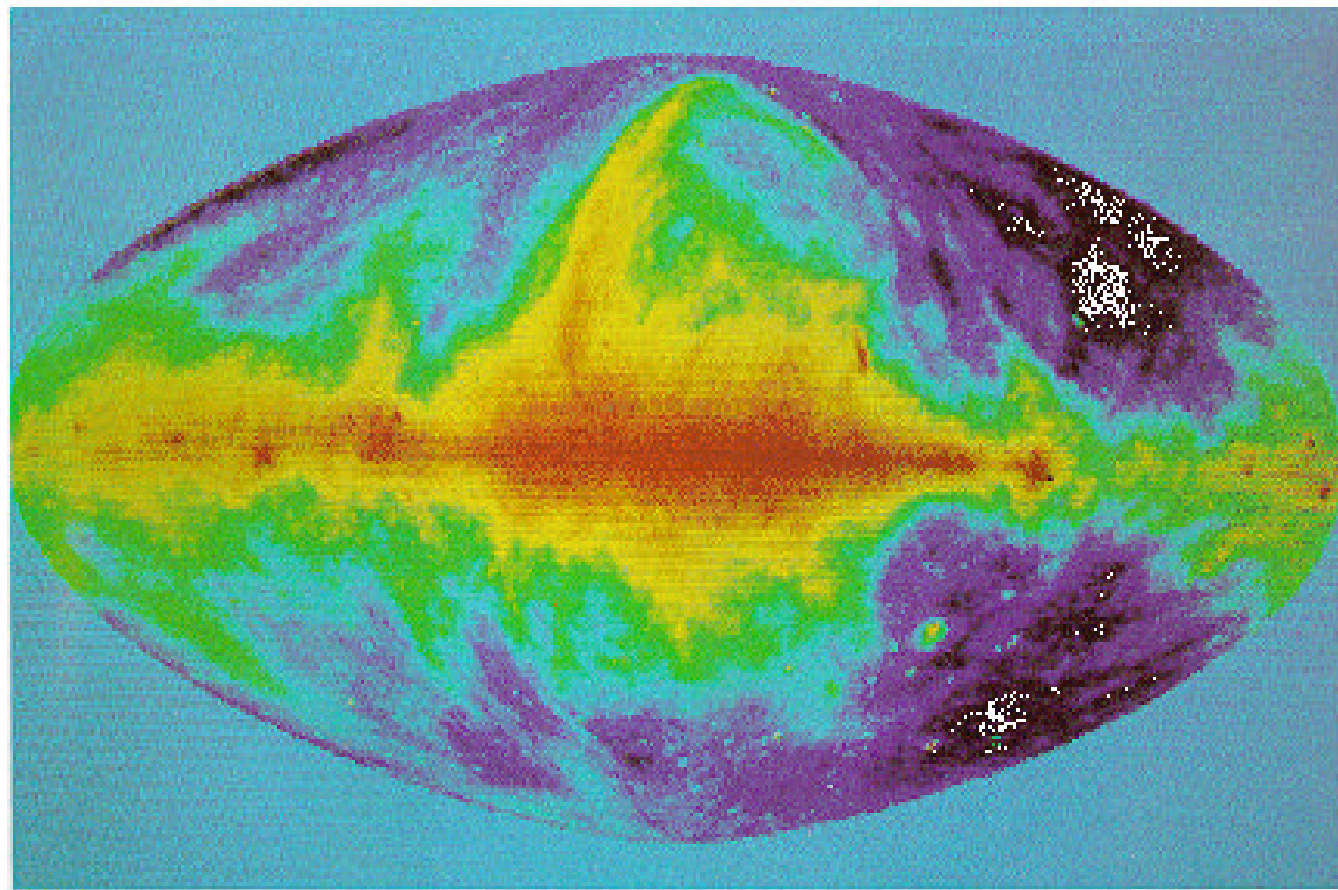
BRIEF DESCRIPTION

- **“A NEW KIND OF EYES”**
- **ELECTROMAGNETIC RADIATION**
FREQUENCY 5 MHz TO 300 GHz
WAVELENGTH 1 NM TO 1 KM
- **RADIO TELESCOPES**
PARABOLIC (SATELLITE) DISHES
TV ANTENNAS
LONG, COAXIAL CABLE

CLASSES OF RADIO SOURCES

- **SOLAR SYSTEM**
- **GALACTIC**
- **RADIO GALAXIES**
- **QUASARS**

RADIO VIEW OF THE MILKY WAY



Radio View of the Milky Way

82 FOOT DIAMETER TELESCOPES



LITTLE "ITTY BITTY" TELESCOPE



**RADIO ASTRONOMY PAIR TEAM AT SOUTH
CAROLINA STATE UNIVERSITY**

REASONS FOR STUDYING RADIO ASTRONOMY

- **LESS DEPENDENT ON ATMOSPHERIC CONDITIONS THAN OPTICAL ASTRONOMY**
- **EMISSION INFORMATION IN ANOTHER REGION OF THE ELECTROMAGNETIC SPECTRUM**
- **DIRECTLY RELATED TO THE TEMPERATURE OF THE OBJECT-
BLACK BODY RADIATION**

BRIEF OVERVIEW OF SUMMER RESEARCH

- **WHAT IS P. A. I. R.?**
- **SOURCES**
- **EQUIPMENT**
- **DISCUSSION OF RESULTS**
- **CONCLUSION**
- **FUTURE RESEARCH**

P. A. R. I

PISGAH ASTRONOMICAL RESEARCH INSTITUTE



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QUESTION AND ANSWER SESSION

