

Special Discoveries by CHT

Initiation of microwave spectroscopy (initiation and extensive development of the field)

Study of nuclear spins, sizes, and shapes (quadrupole moments) – interpretation from molecular spectra

Amplification by stimulated emission of radiation – general coverage
1st maser built

Explanation of how to achieve amplification by stimulated emission at optical wavelengths (with Schawlow)

Non-linear optics – early papers and explanations – harmonic generation

First detection of stable molecules in the interstellar medium (NH_3 & H_2O)

First measurement of the mass of the large black hole in the center of our galaxy.

Interferometry and astronomical spectroscopy using heterodyne detection in the mid IR

First measurement of the change in size of a Mira star, and the phase of size change compared to that of luminosity change

Measurement of warm (not necessarily hot) dust shells around stars – multiple shells & asymmetries and their motions.

Change in size and asymmetries of red giant stars.