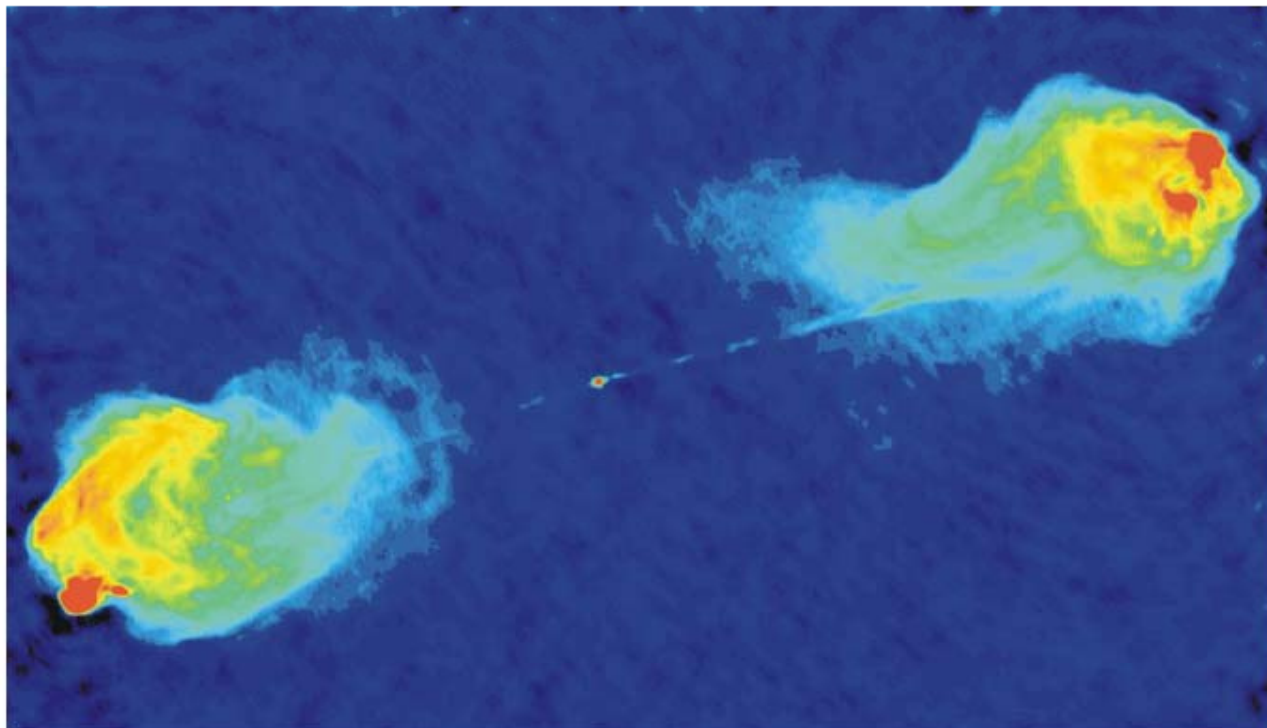


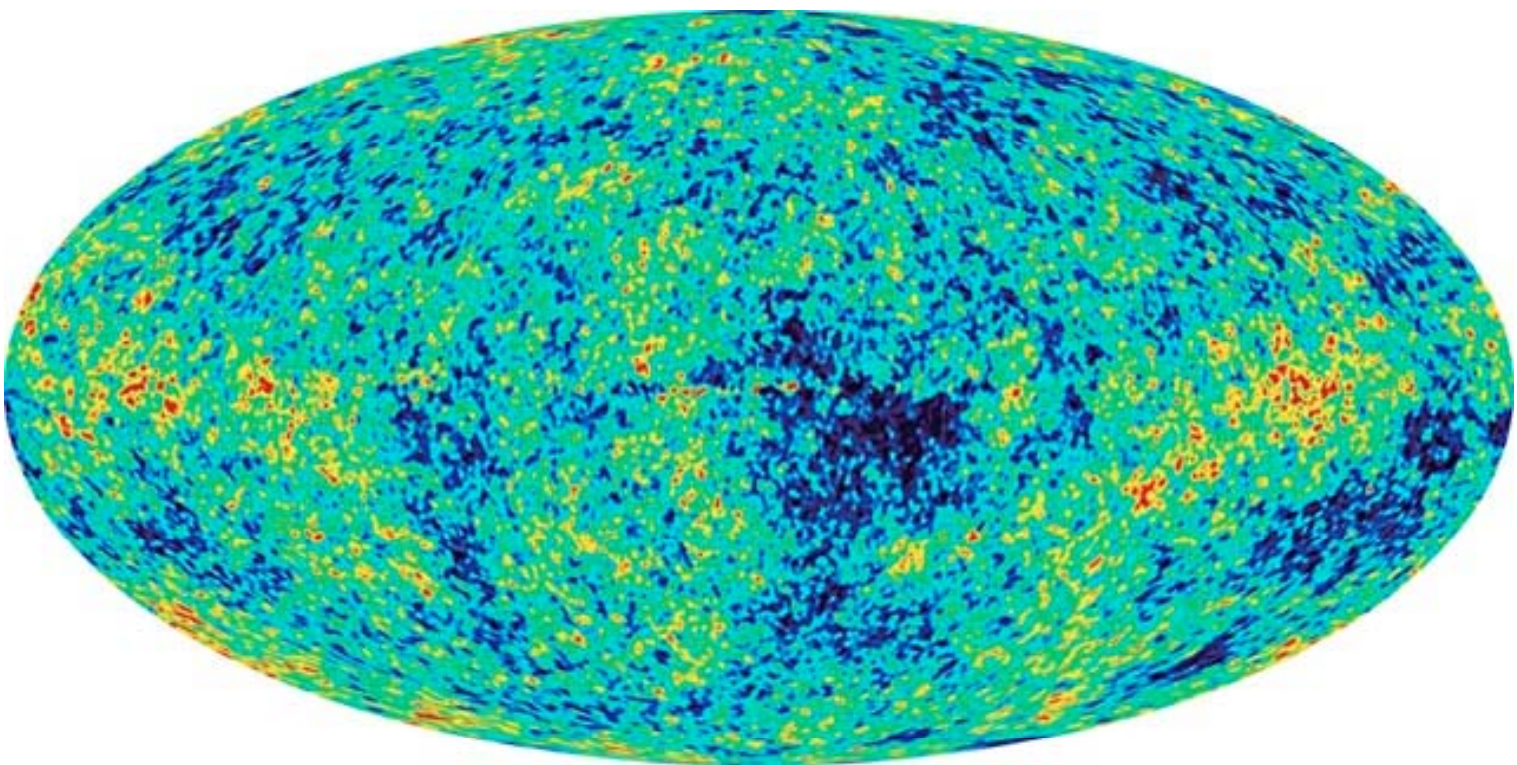
The Synchrotron Emission from Cygnus A Imaged with the VLA at 6 cm Wavelength



Sometimes you want the power spectrum of the structure in the image more than you want the image itself

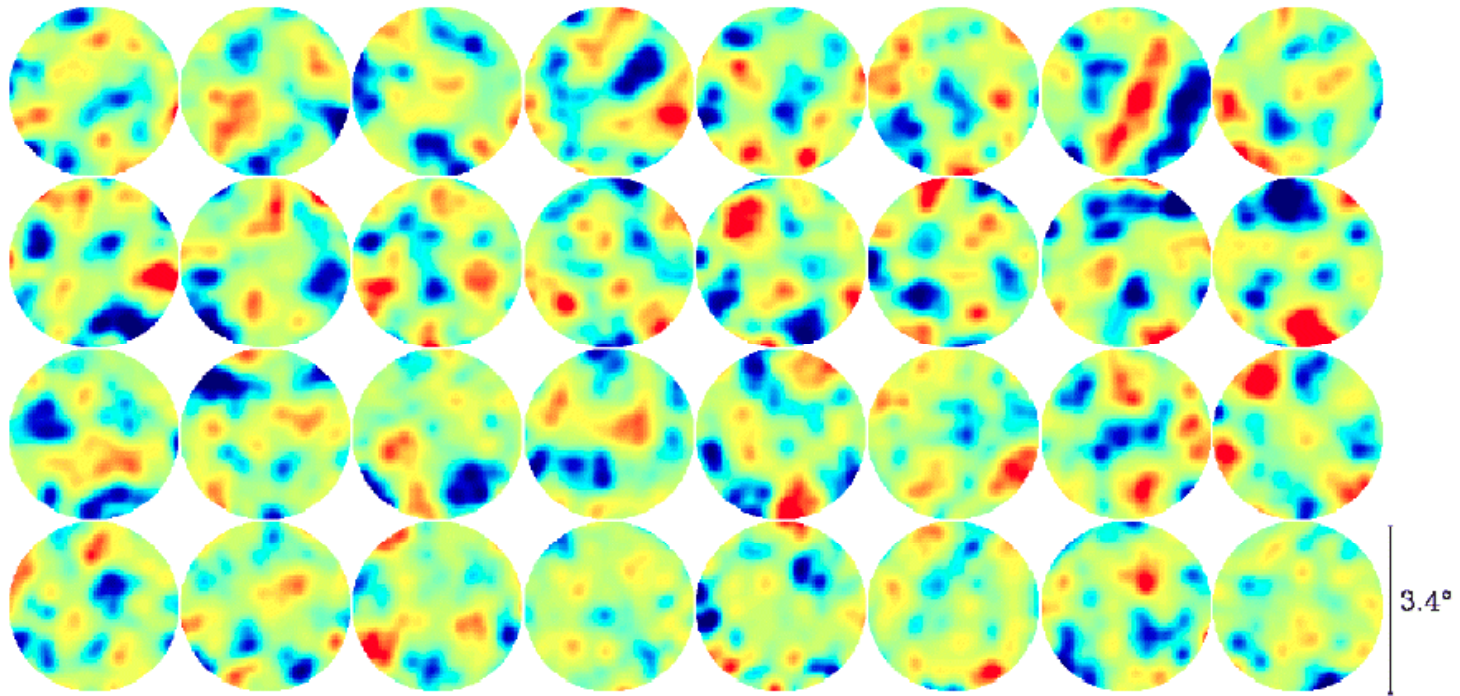
Then the interferometer makes the direct measurement

WMAP views the
Cosmic Microwave Background



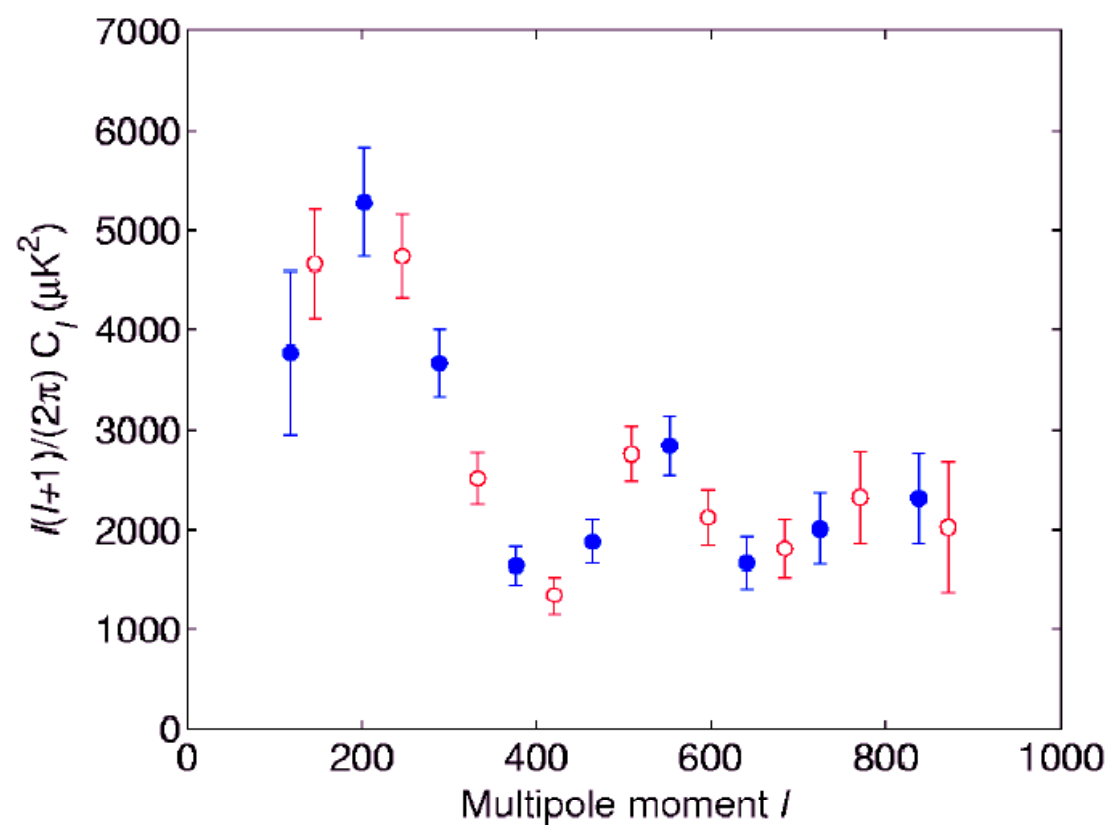
http://map.gsfc.nasa.gov/m_mm.html

DASI CMB images of 32 fields

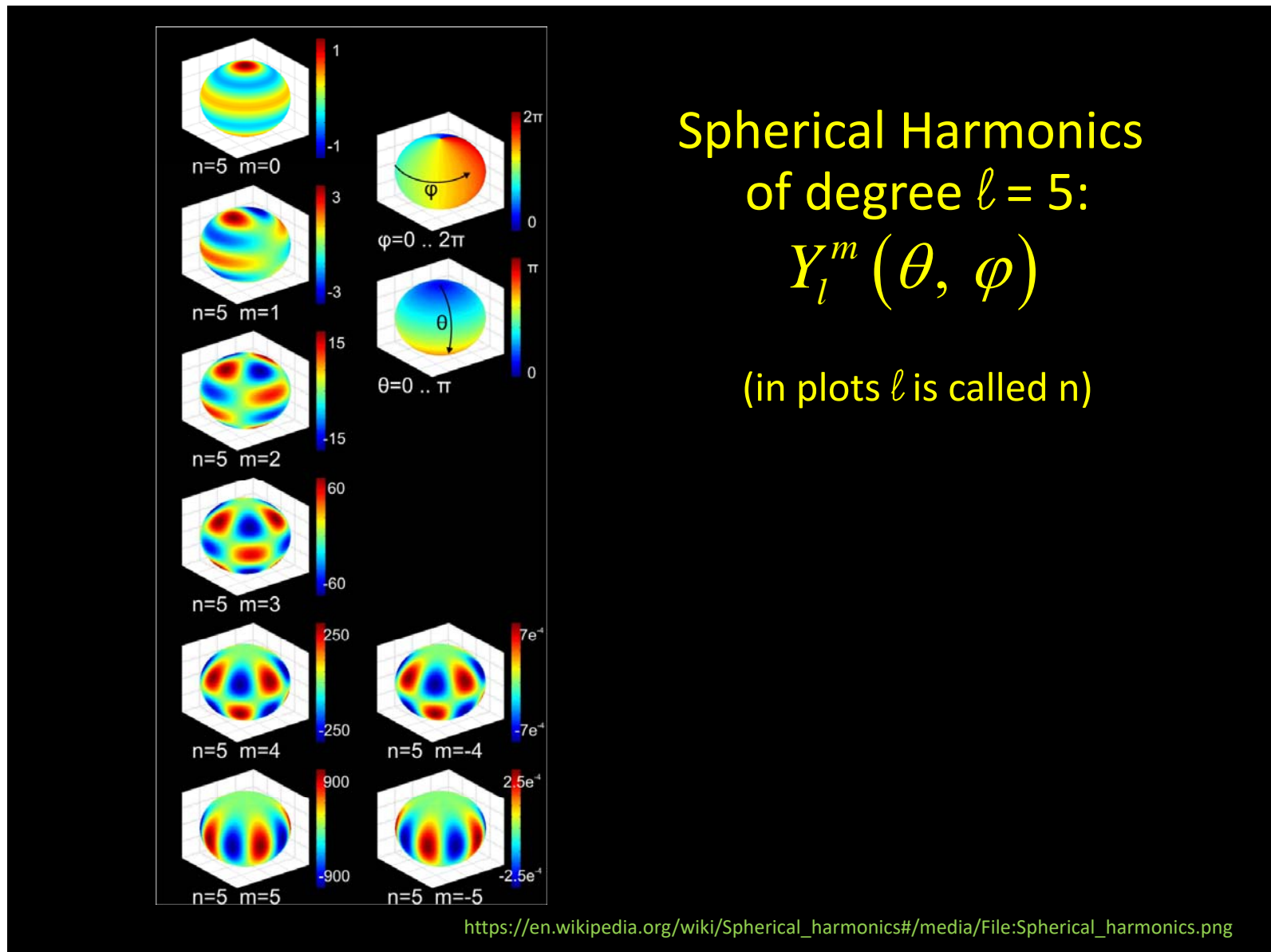


Carlstrom et al. 2001

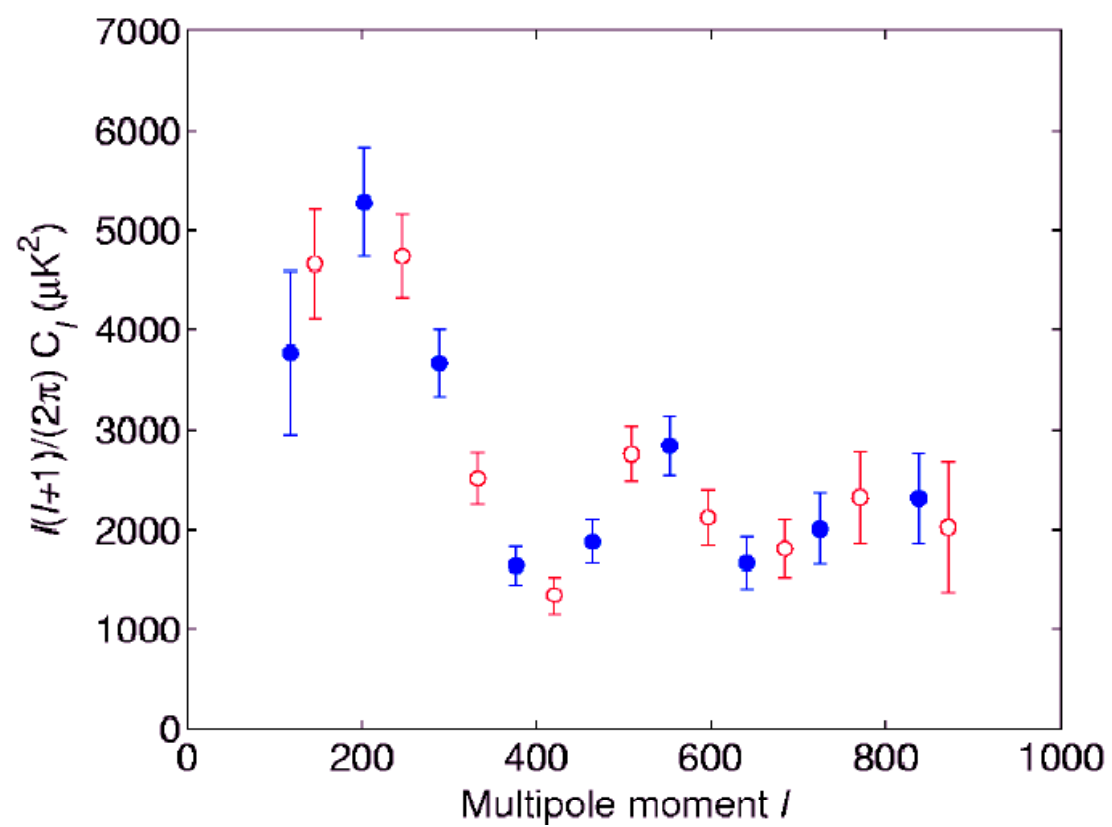
Angular power spectrum from the DASI interferometer



Carlstrom et al. 2001



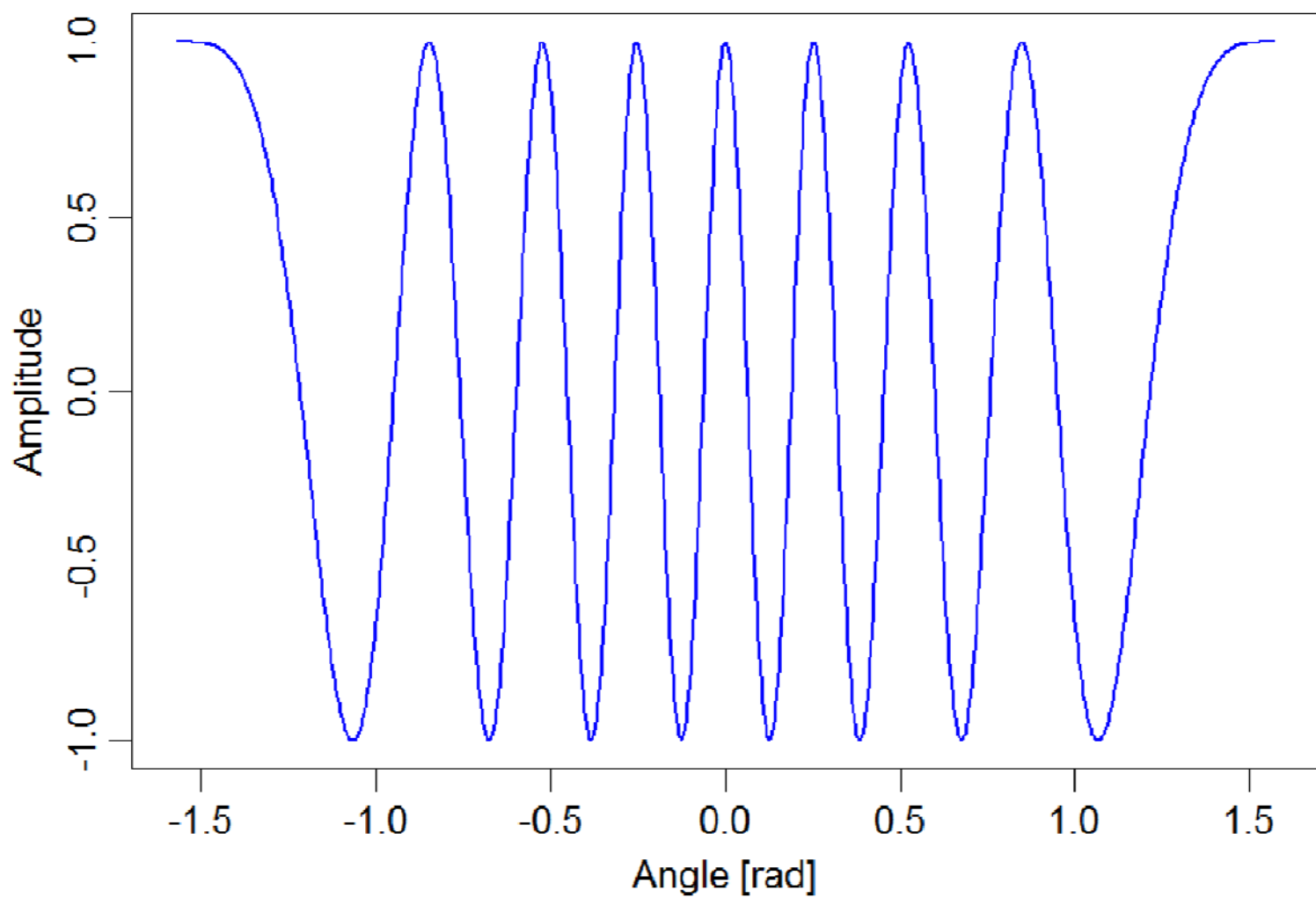
Angular power spectrum from the DASI interferometer

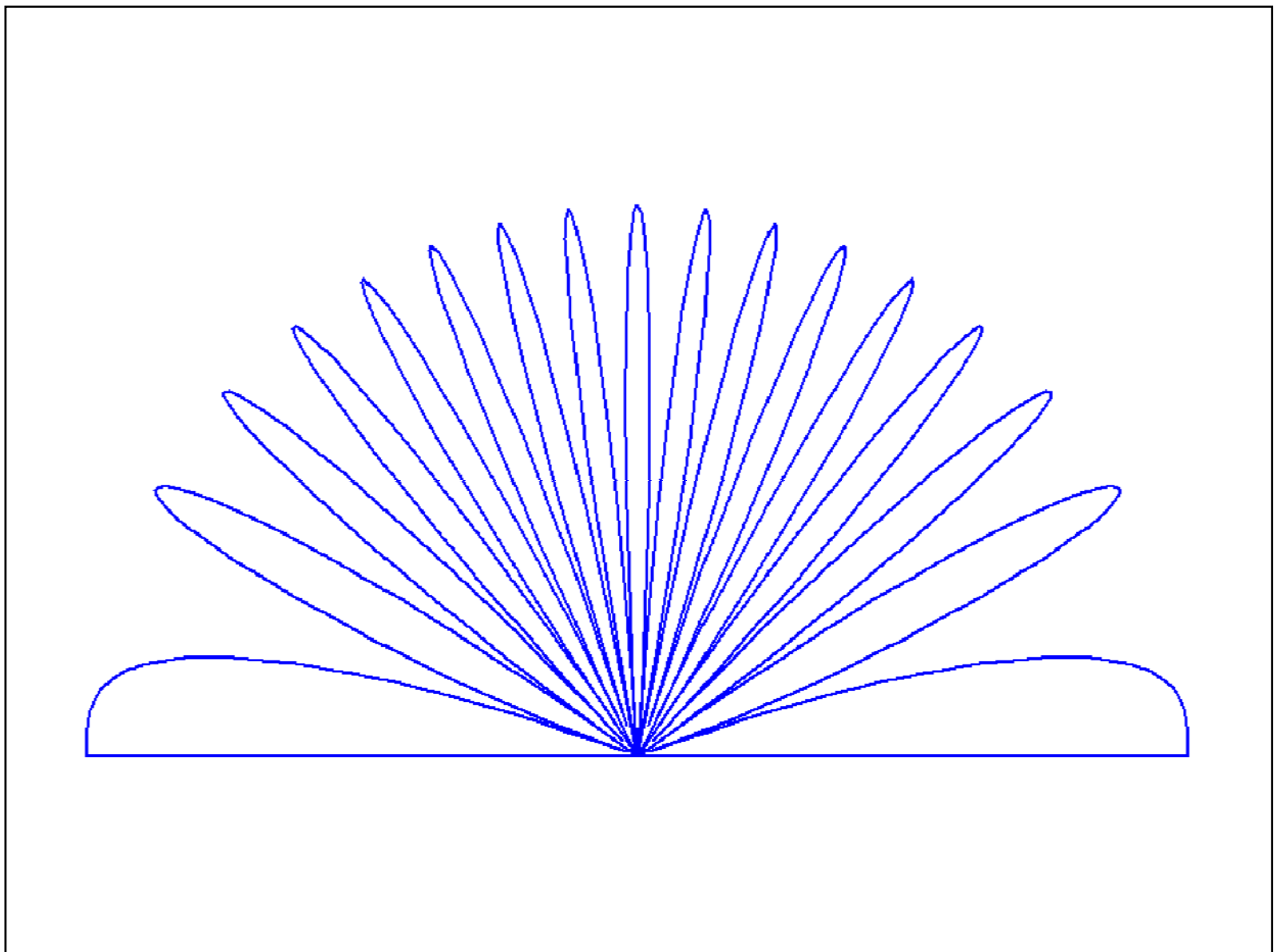
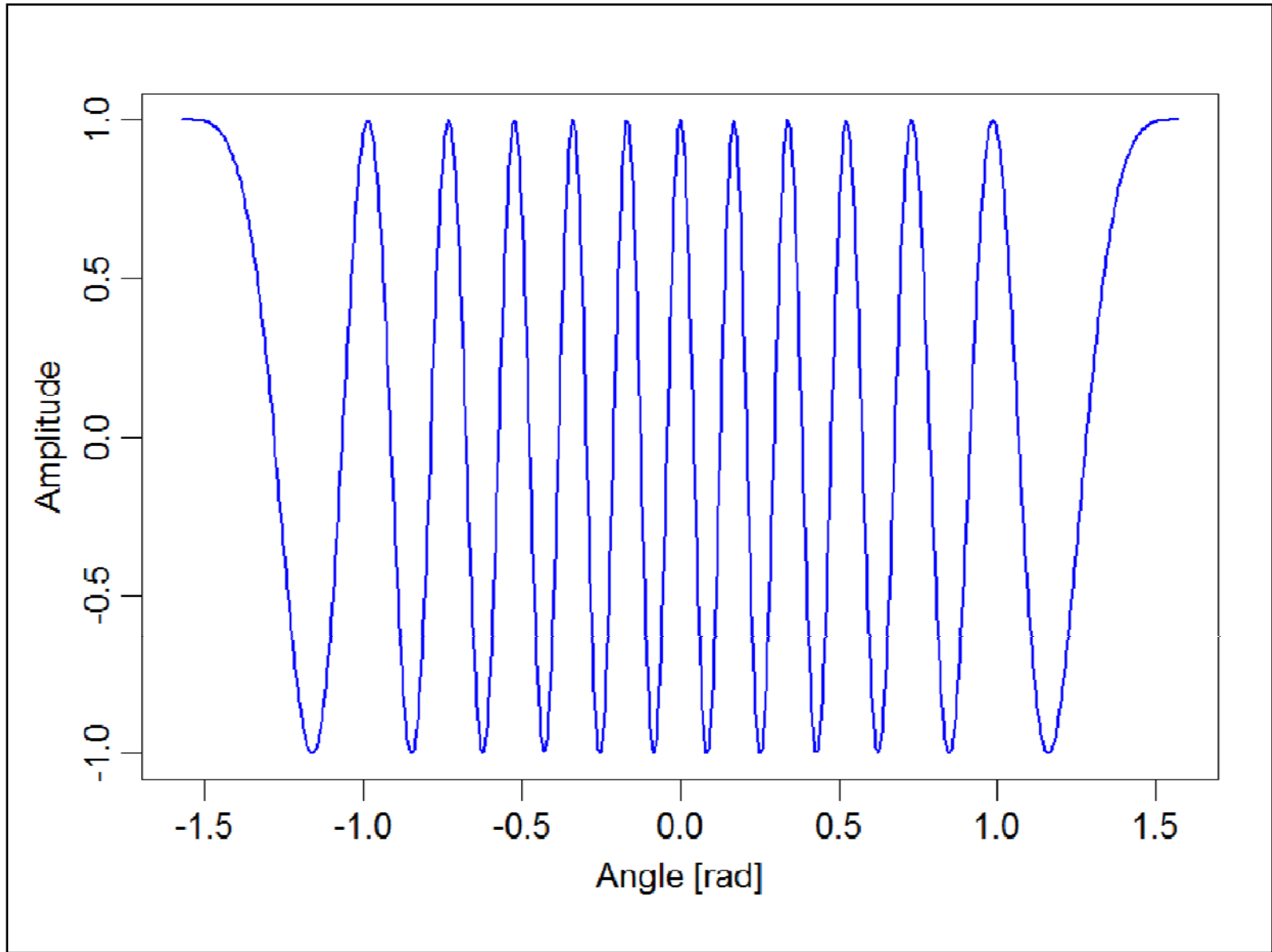


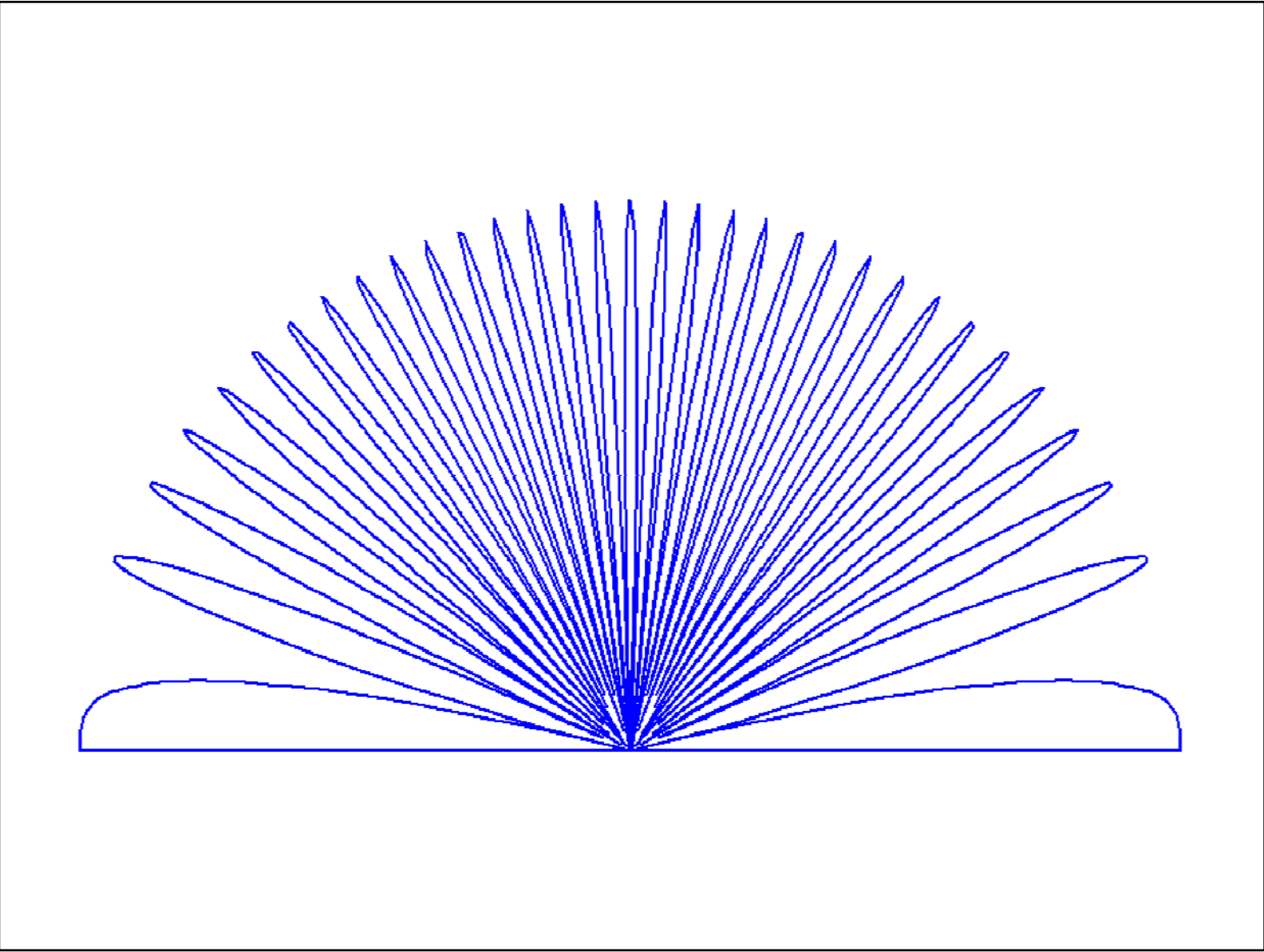
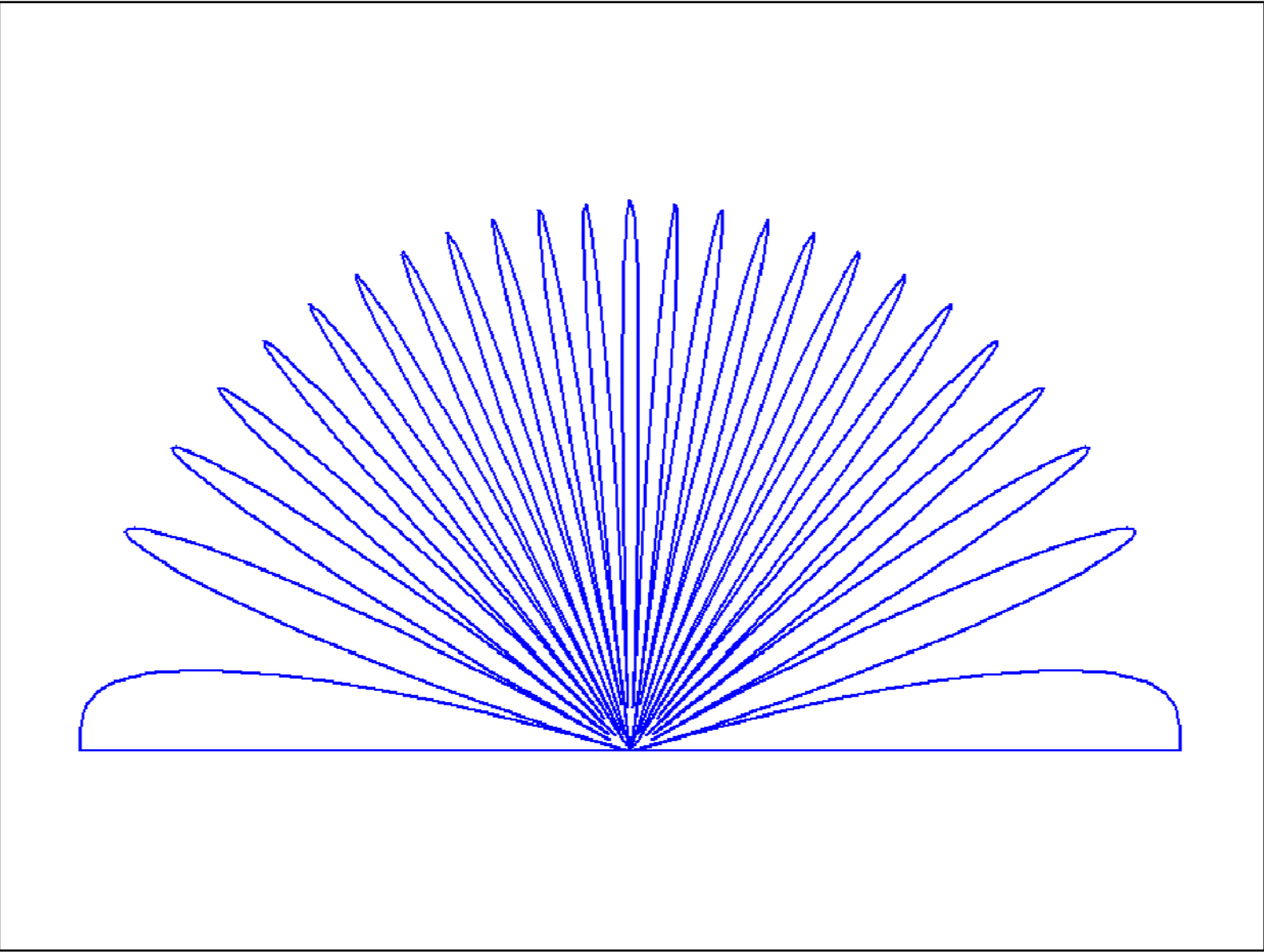
Carlstrom et al. 2001

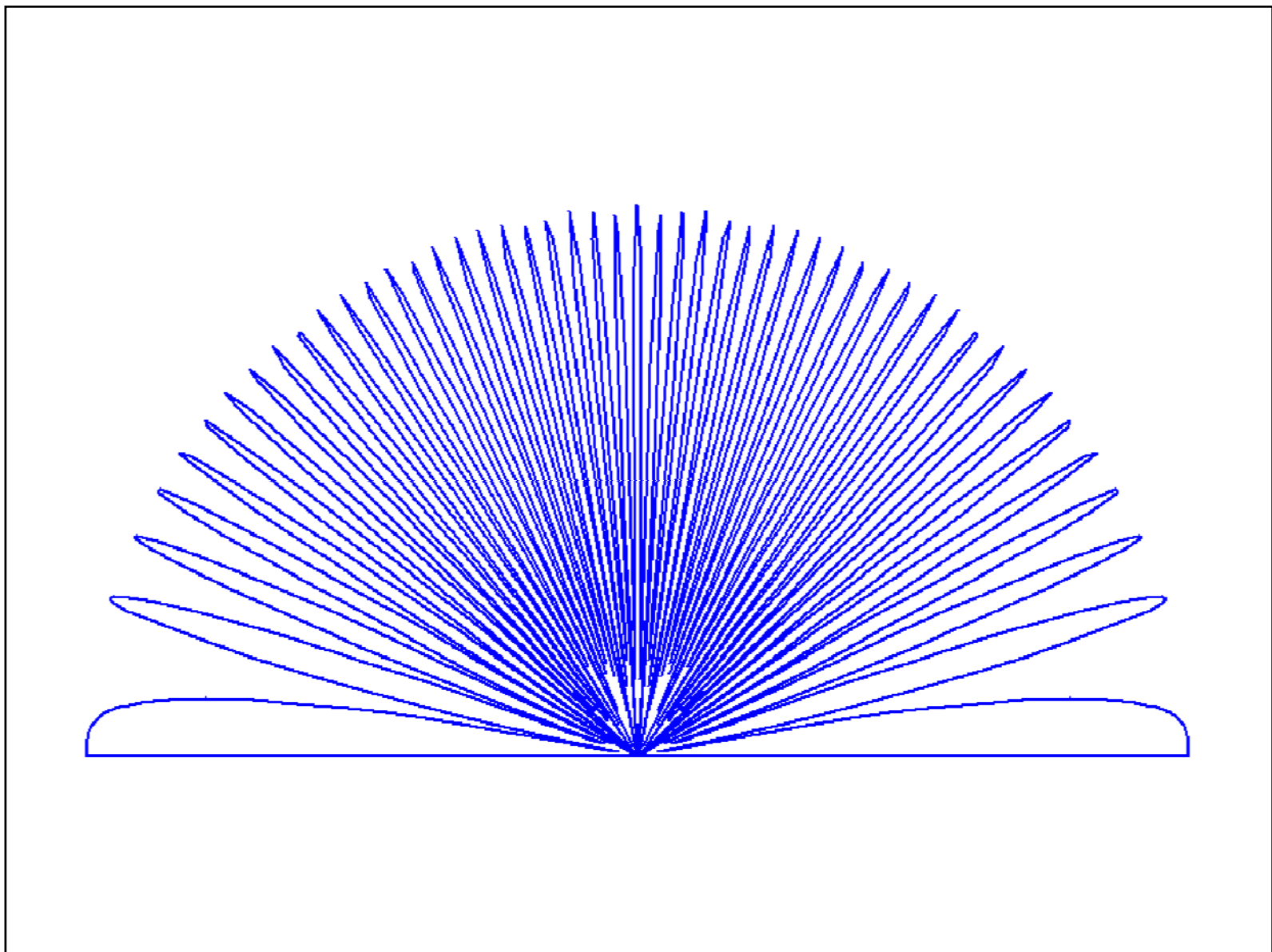
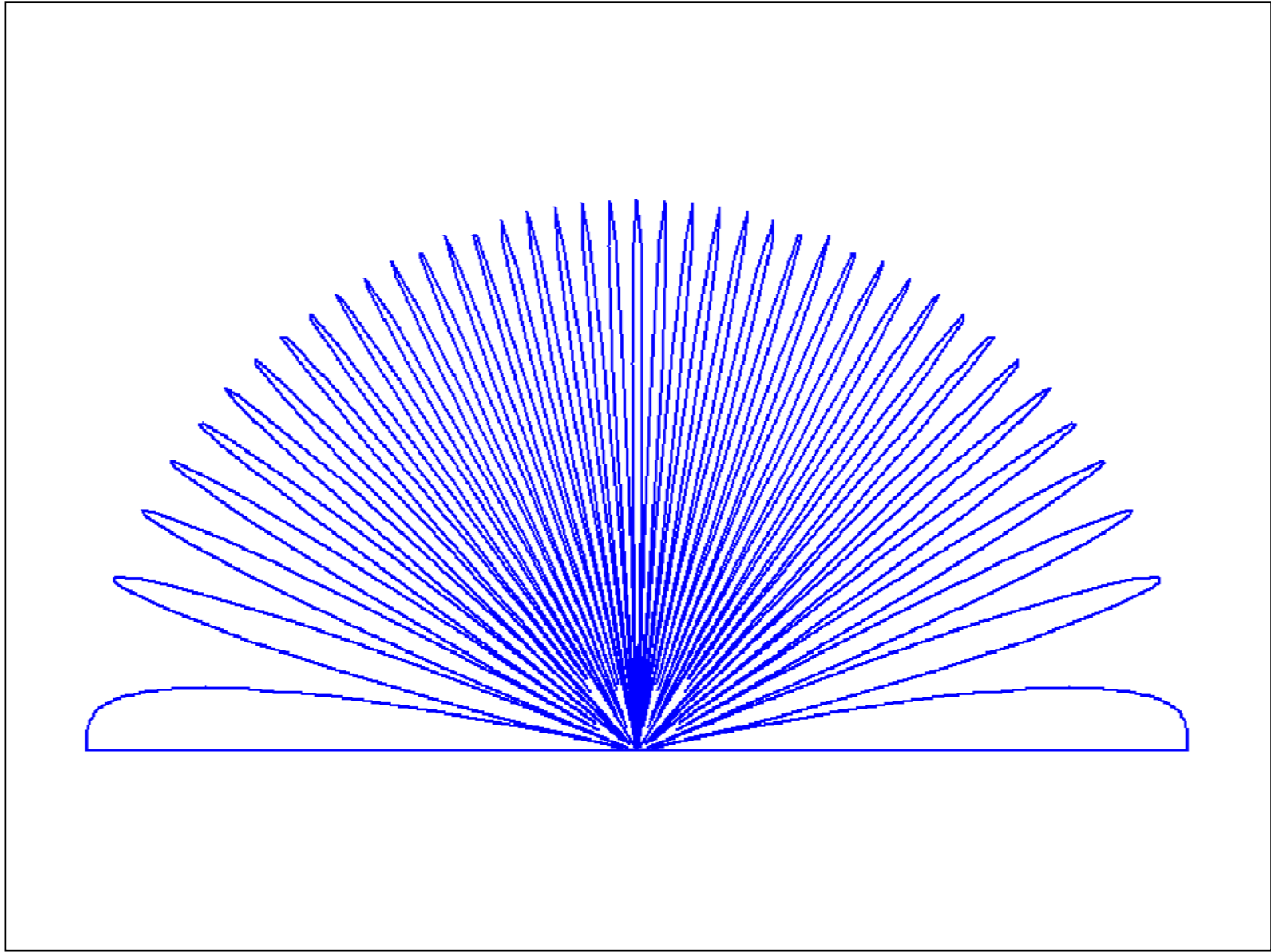
Fringe spacing changes with aperture (antenna) separation

Rectangular and polar representations





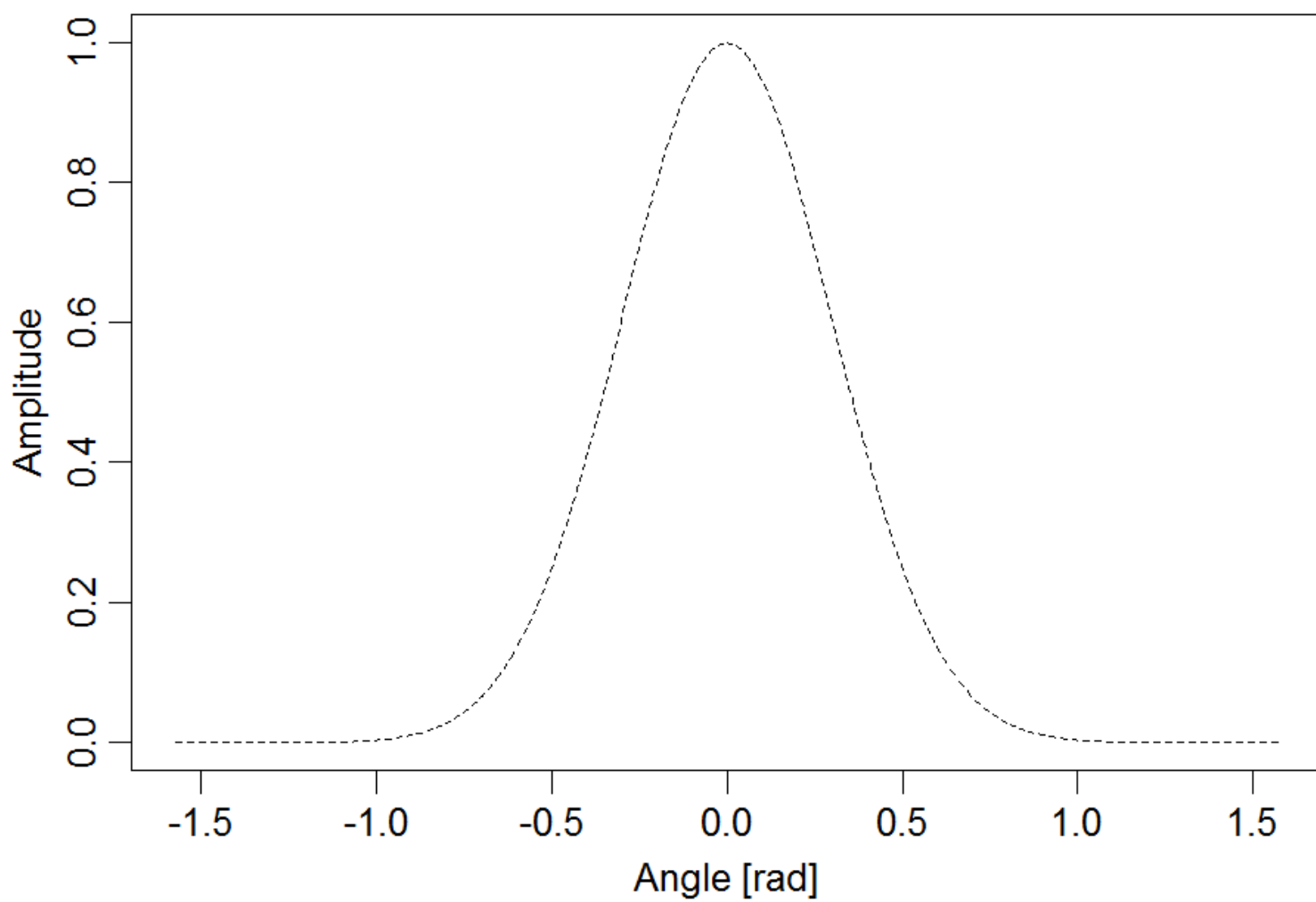


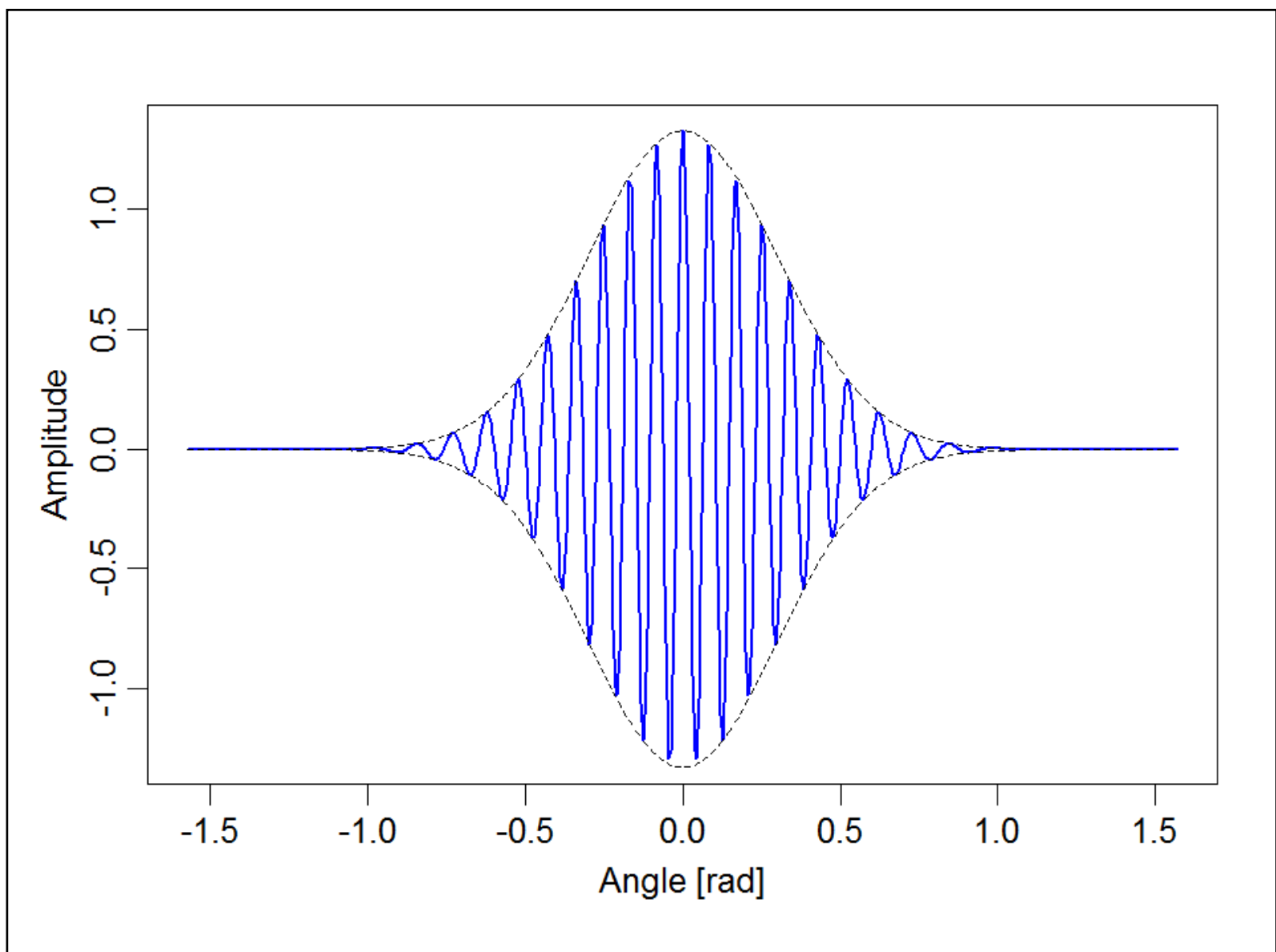
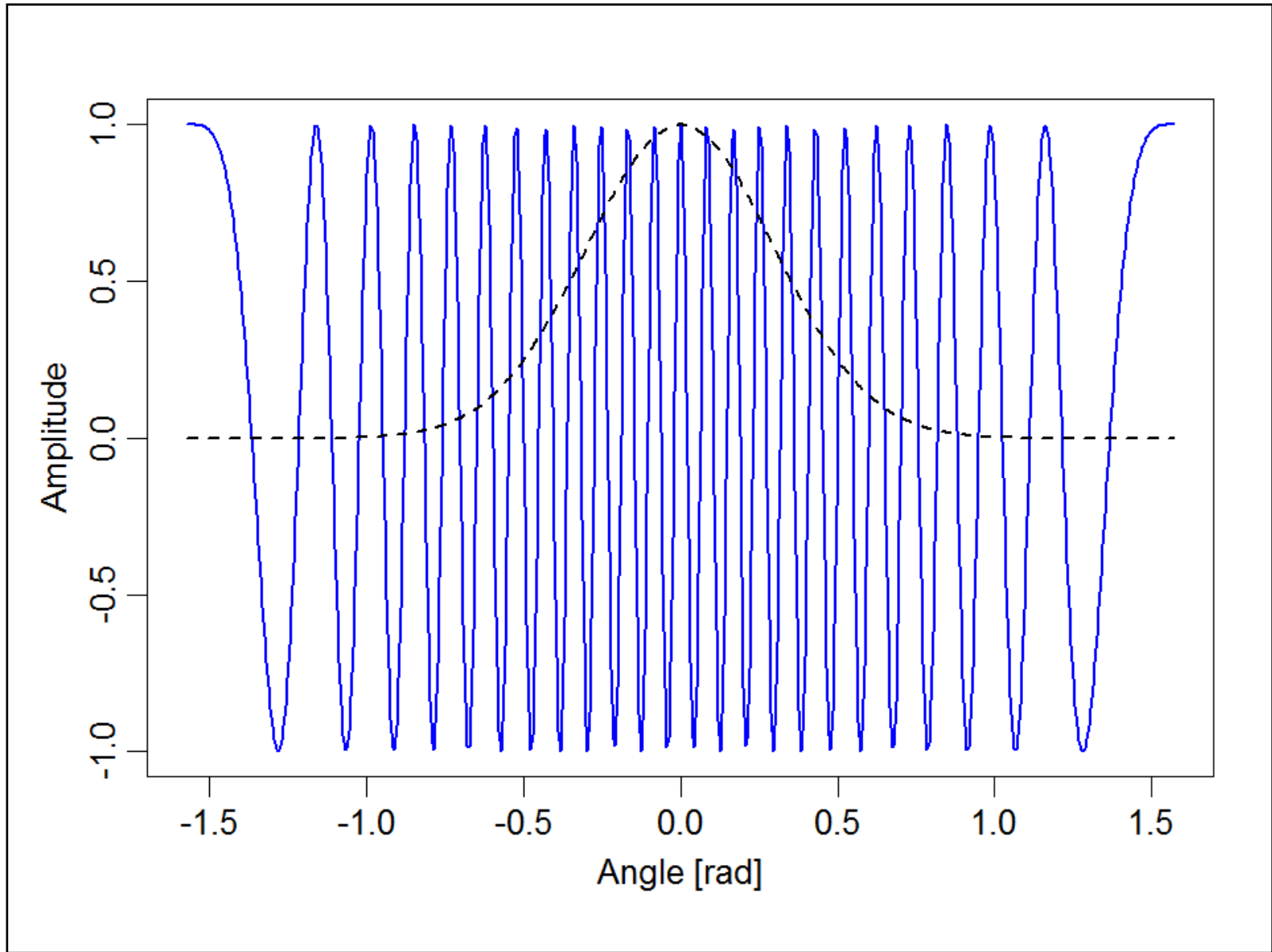


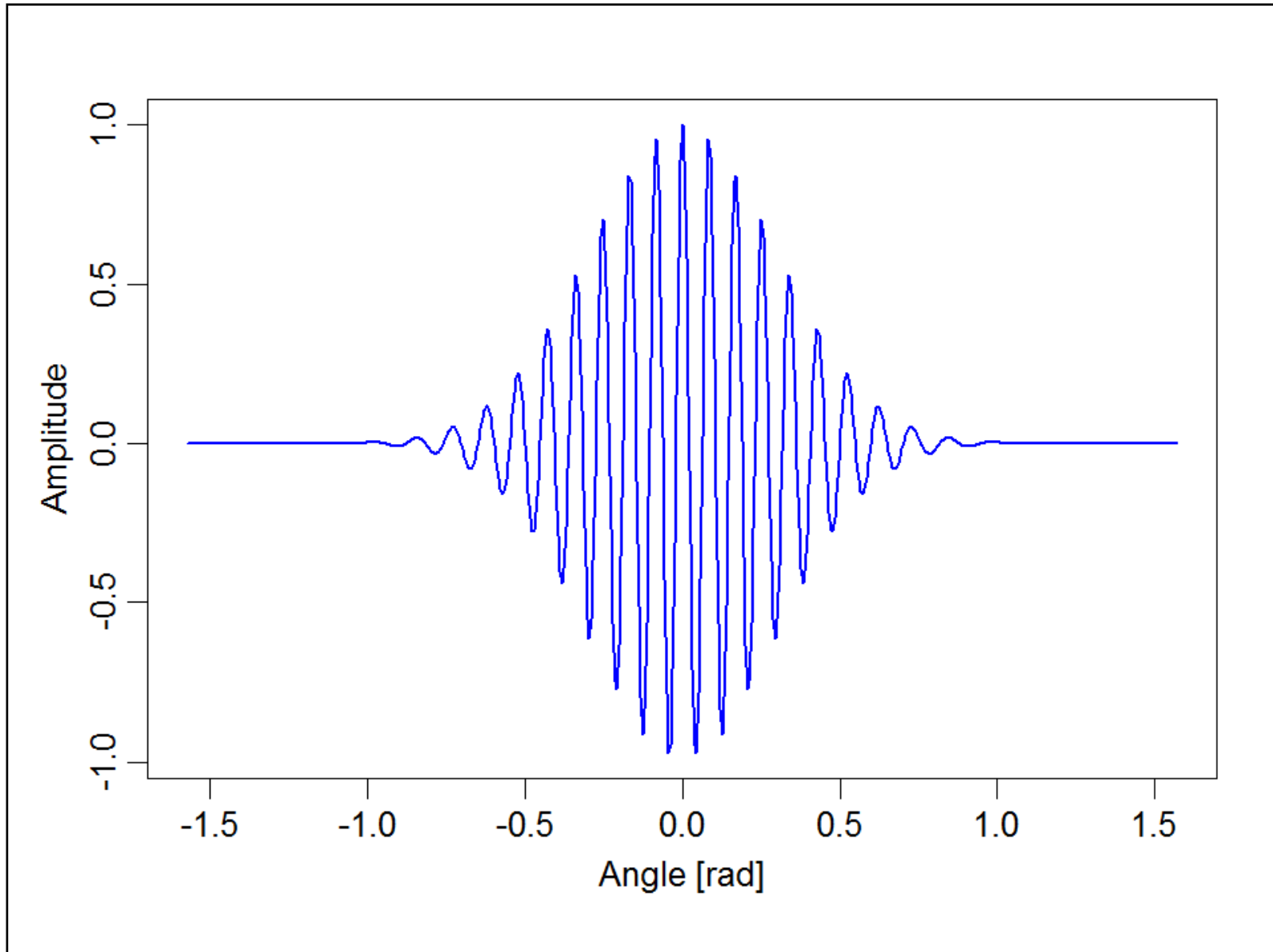
The “primary beam” of individual apertures limits the field of view

$$\theta \sim \frac{\lambda}{D}$$

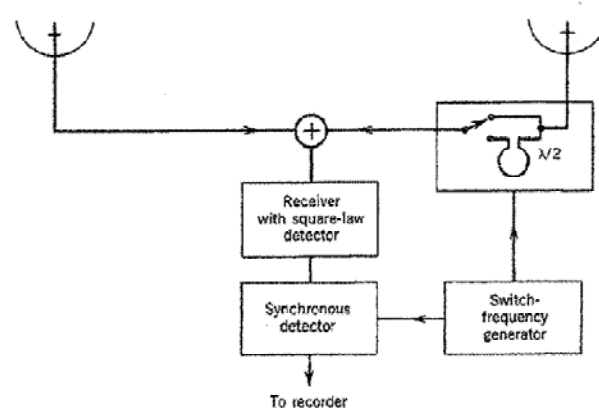
Rectangular and polar representations



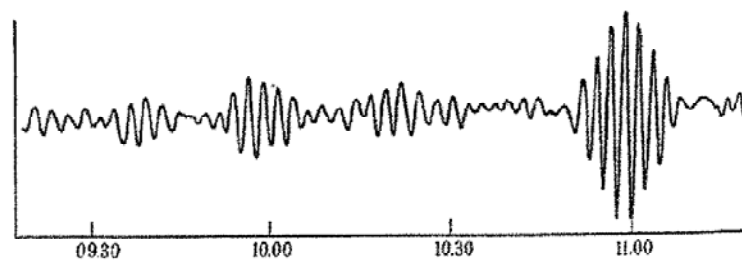




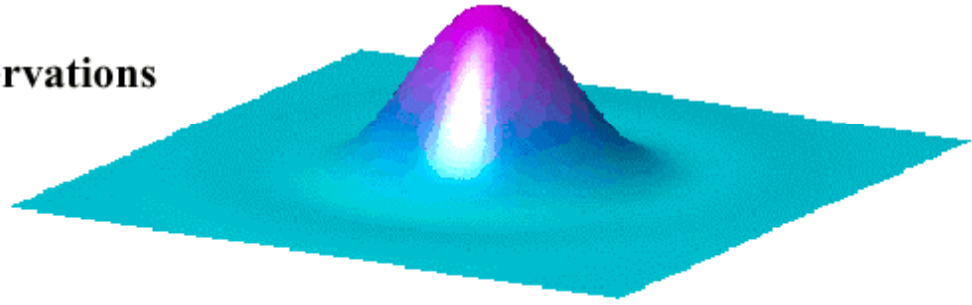
Phase Switching Interferometer (Ryle, 1952)



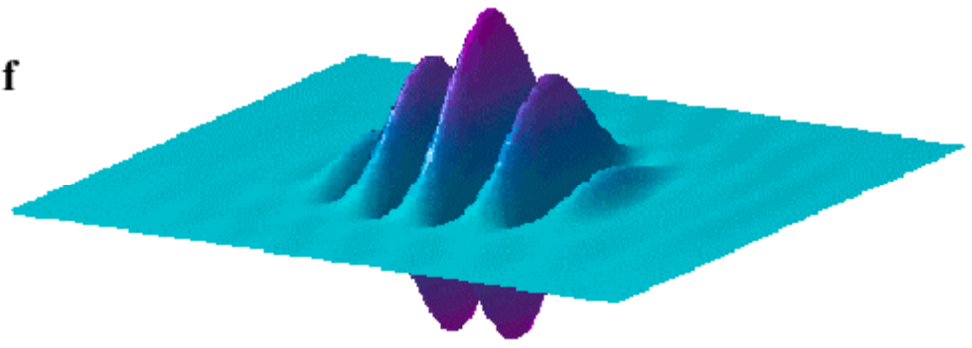
$$R = (a + b)^2 - (a - b)^2 = 4ab$$



'beam' for single dish observations



'beam' for two elements of interferometer array



Carlstrom et al. 2001



