



Phase shifters are commonly used in phased array antenna systems to facilitate steering of the antenna beam. A single-bit phase shifter can switch between two phase states, for example between 0 and 180 degree, or between 0 and 90 degrees. In digital phase shifters several of these bits are cascaded to obtain a higher phase resolution.

Phase shifters are usually designed using a combination of a high-pass and a low-pass filter. Such phase shifters have a broadband performance and compact size. However, the first two bits (180° and 90°) have a significant phase error above and below the center frequency.

A new high-pass/transmission line phase shifter was developed to improve both the phase response and insertion loss from theory to practical design. The topology and measured results were reported in a conference paper entitled: "A 180 degree phase shifter with small phase error for broadband applications". From a selection of more than 100 papers, the paper won the 2nd prize of the best student poster paper award of the 2007 IEEE International Conference on Electron Devices and Solid-State Circuits in December 2007, Taiwan.

Mr. Tang Xinyi gained his bachelor degree from Huazhong Univ. of Sci. & Tech. from China in 2006. Mr. Tang's current research interest is in the analysis and design of phase shifters for phased array radar systems.