

Wisconsin MRSEC researchers have used 3D-printing to make a new waveguide for microwaves. These waveguides are formed from a topological photonic crystal, which makes them more resistant to defects. As a result, a straight waveguide and a waveguide with multiple bends have the same ability to transmit radiation.

The researchers also studied which lattice defects affected the transmission, finding that some corners were more sensitive to defects than others. This was related to the path of energy flow through the waveguide.

The combination of rapid simulation and 3D-printing results from a multidisciplinary collaboration enabled by the MRSEC and demonstrates a new method for quickly testing and optimizing photonic devices.

