Wideband RF Circuits using CRLH TL

Scope: This work is on the Design Compact Microwave Circuits having Low-Loss Broad-Band characteristics using composite right left handed transmission lines (CRLHTL).

- CRLH offers compact designs for many RF circuits/components.
- Couplers with broad bandwidth and tight coupling
  - Limits on maximum bandwidth investigated: decided by fabrication limitations
  - Relation between the impedance of the coupled line and the coupler bandwidth investigated
  - Several possibilities for unit cells studied
- 3dB couplers with 35% bandwidth demonstrated at S band.
  - One unit cell on each arm for better bandwidth
  - Fractional bandwidths ranging from 40% to 60% in C-band.
  - The Quadrature phase balance of 90±2° is achieved from 3.25 to 4GHz
  - Amplitude balance of ±1 dB in the given frequency range.