

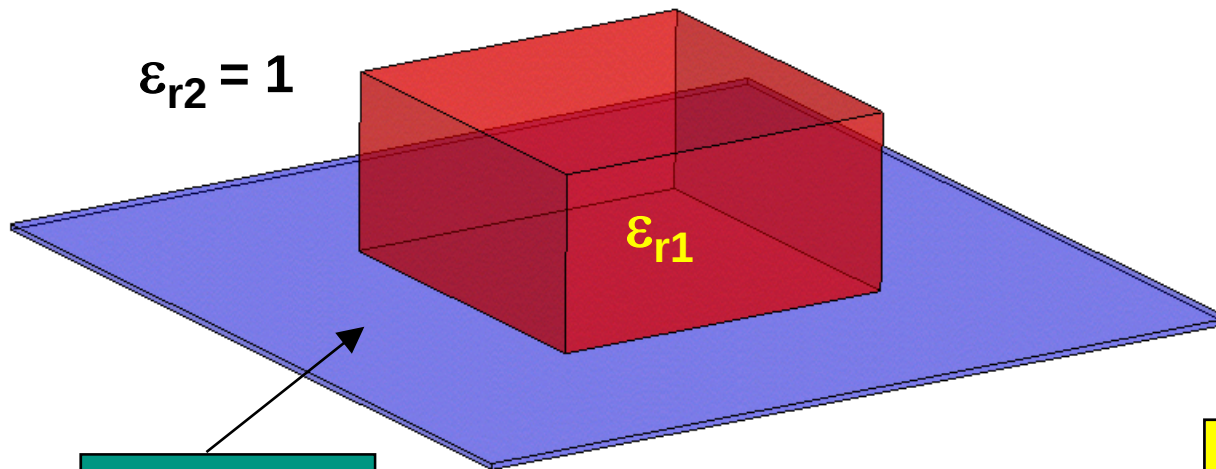
Aperturantennen

by Thomas Zwick

INSTITUT FÜR HOCHFREQUENZTECHNIK UND ELEKTRONIK



- Patch-Antennen
- Hornantennen
- Reflektorantennen
- Linsenantennen
- **Dielektrische Antennen**



$$\epsilon_{r1} = 10 \dots 100$$

$$\tan \delta \ll 1$$

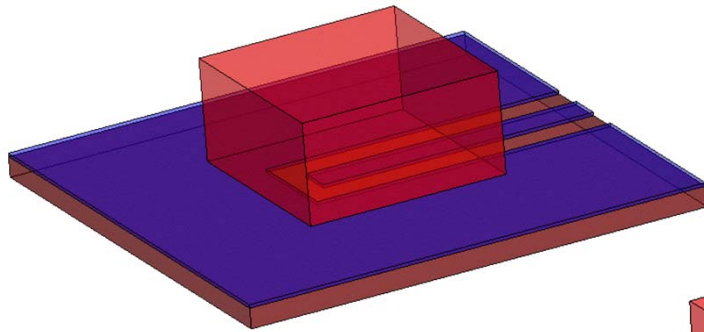
Massefläche

$$B = \frac{f_0}{Q}$$

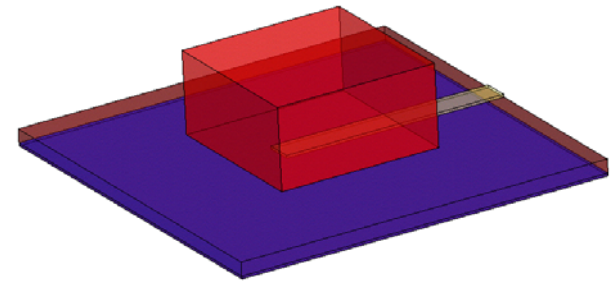
$$Q \propto \sqrt{\epsilon_r}$$

$$r = \frac{1 - \sqrt{\frac{\epsilon_{r2}}{\epsilon_{r1}}}}{1 + \sqrt{\frac{\epsilon_{r2}}{\epsilon_{r1}}}}$$

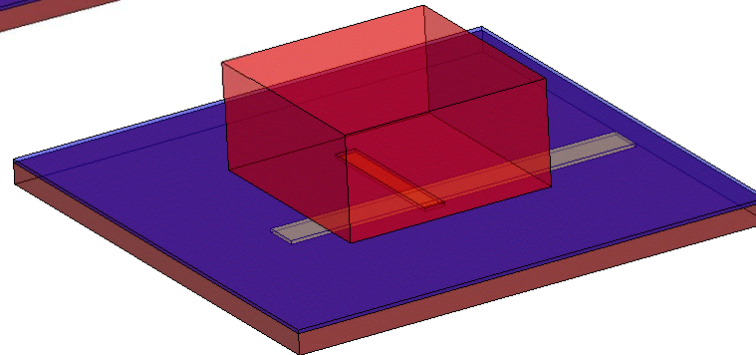
Speisekonzepte



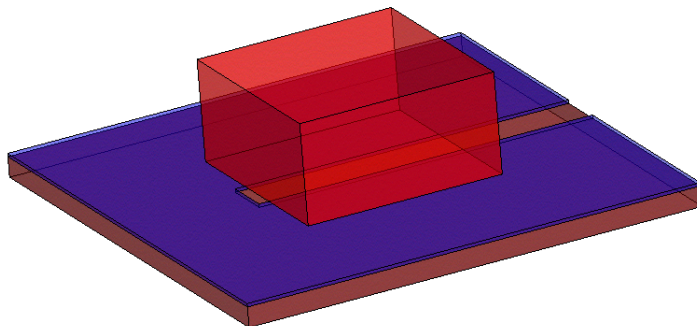
Koplanar



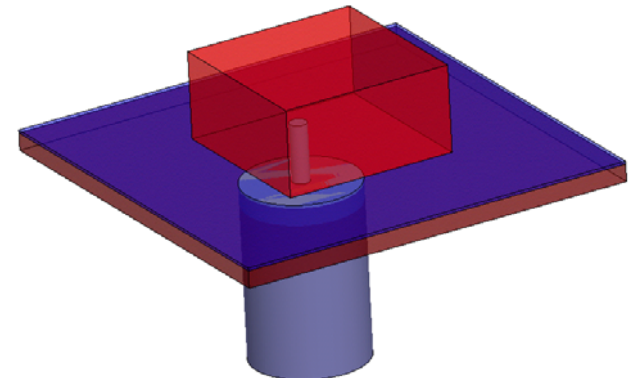
Mikrostreifenkopplung



Aperturkopplung



Schlitzleitung

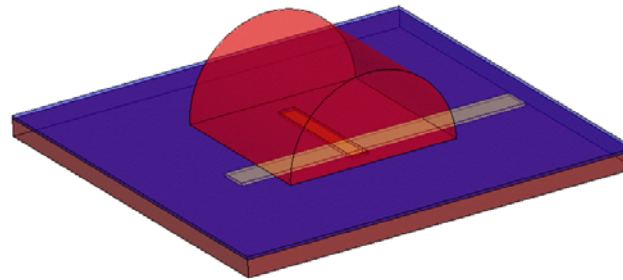


Koaxialinnenleiter

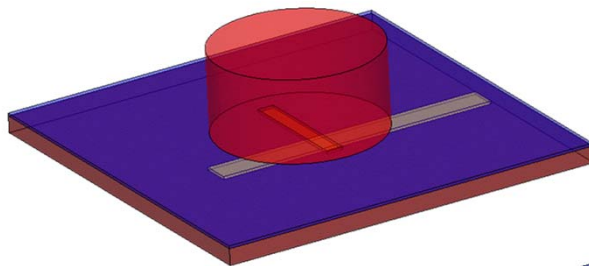
Vergleich unterschiedlicher Formen

Resonator:

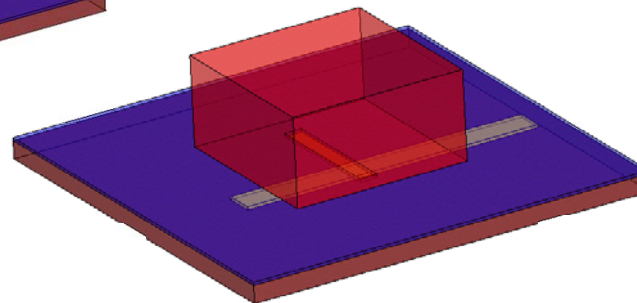
Material: Al_2O_3
 $\epsilon_r = 10$
 $\tan \delta = 0,001$



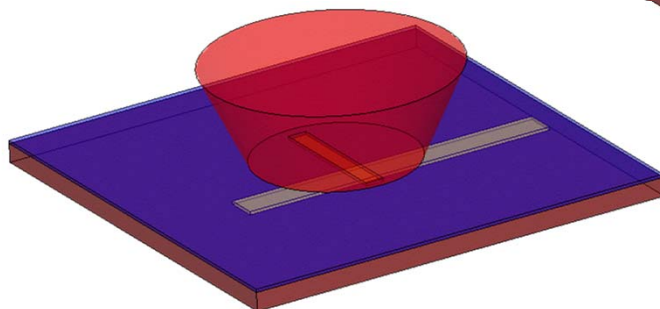
Halbzylinder



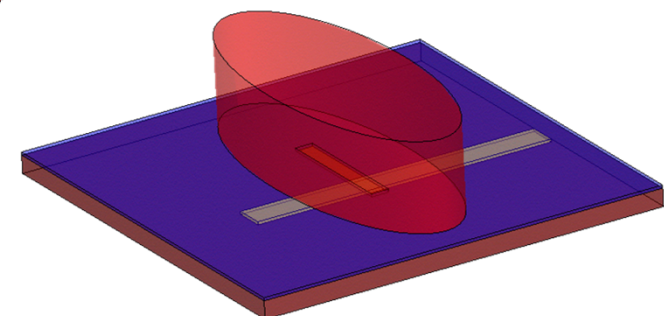
Zylinder



Quader



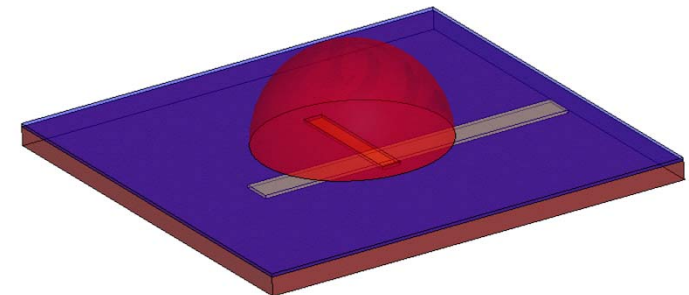
Kegelstumpf



Elliptisch

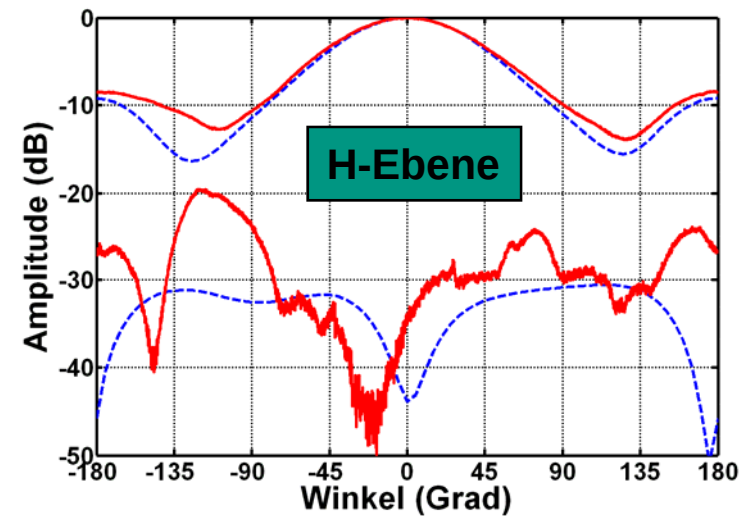
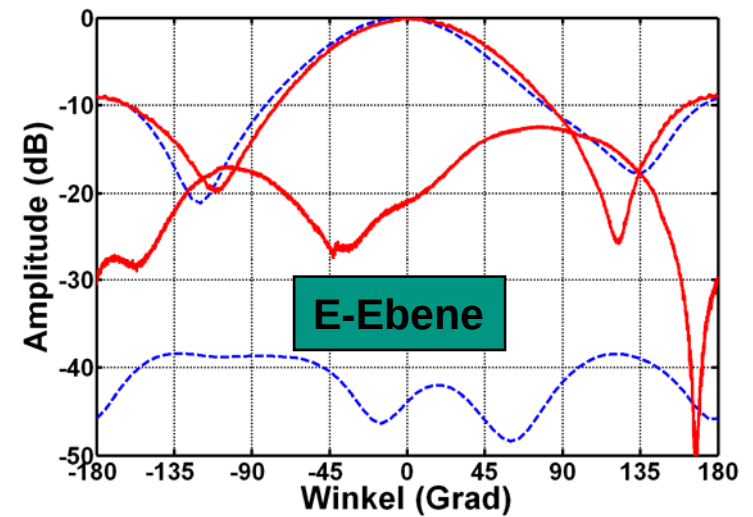
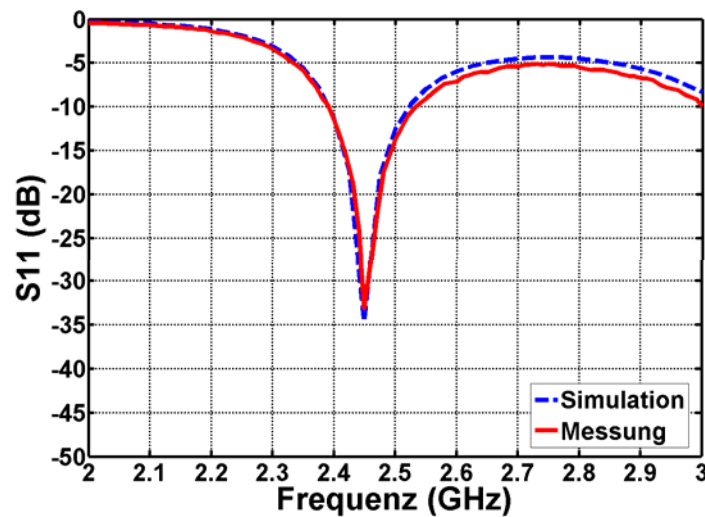
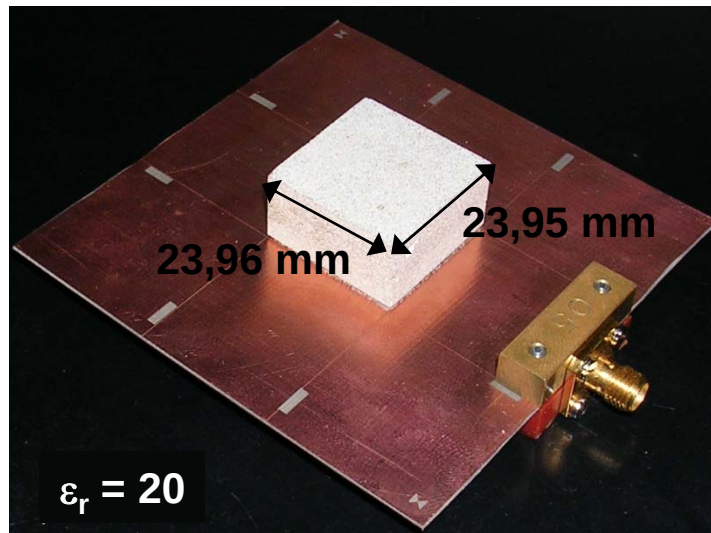
Substrat:

Material: Arlon 320
 $\epsilon_r = 3,2$
 $\tan \delta = 0,003$

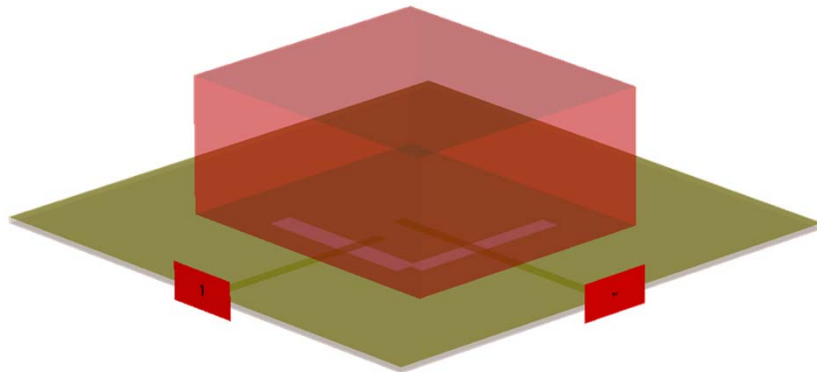


Halbkugel

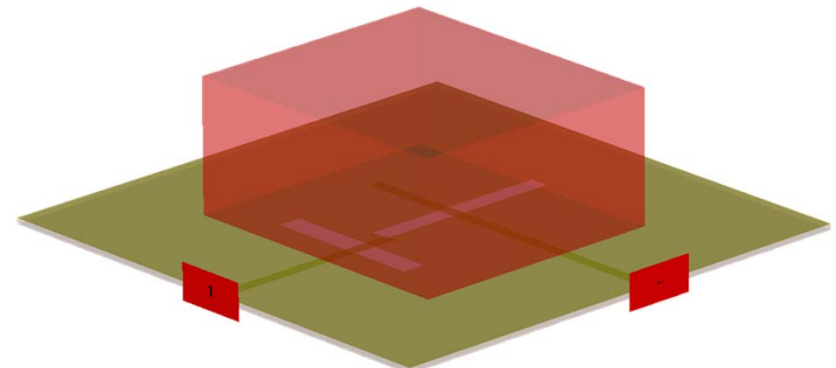
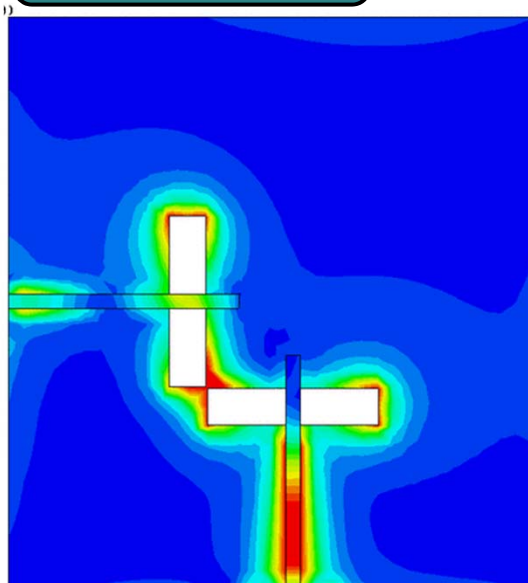
Validierung



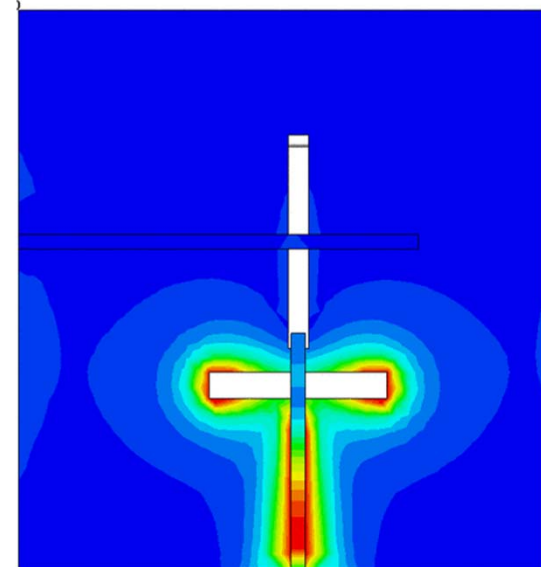
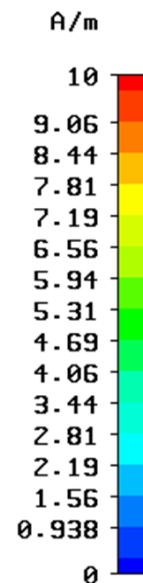
Kopplungsarten für dual-polarisierte DRAs



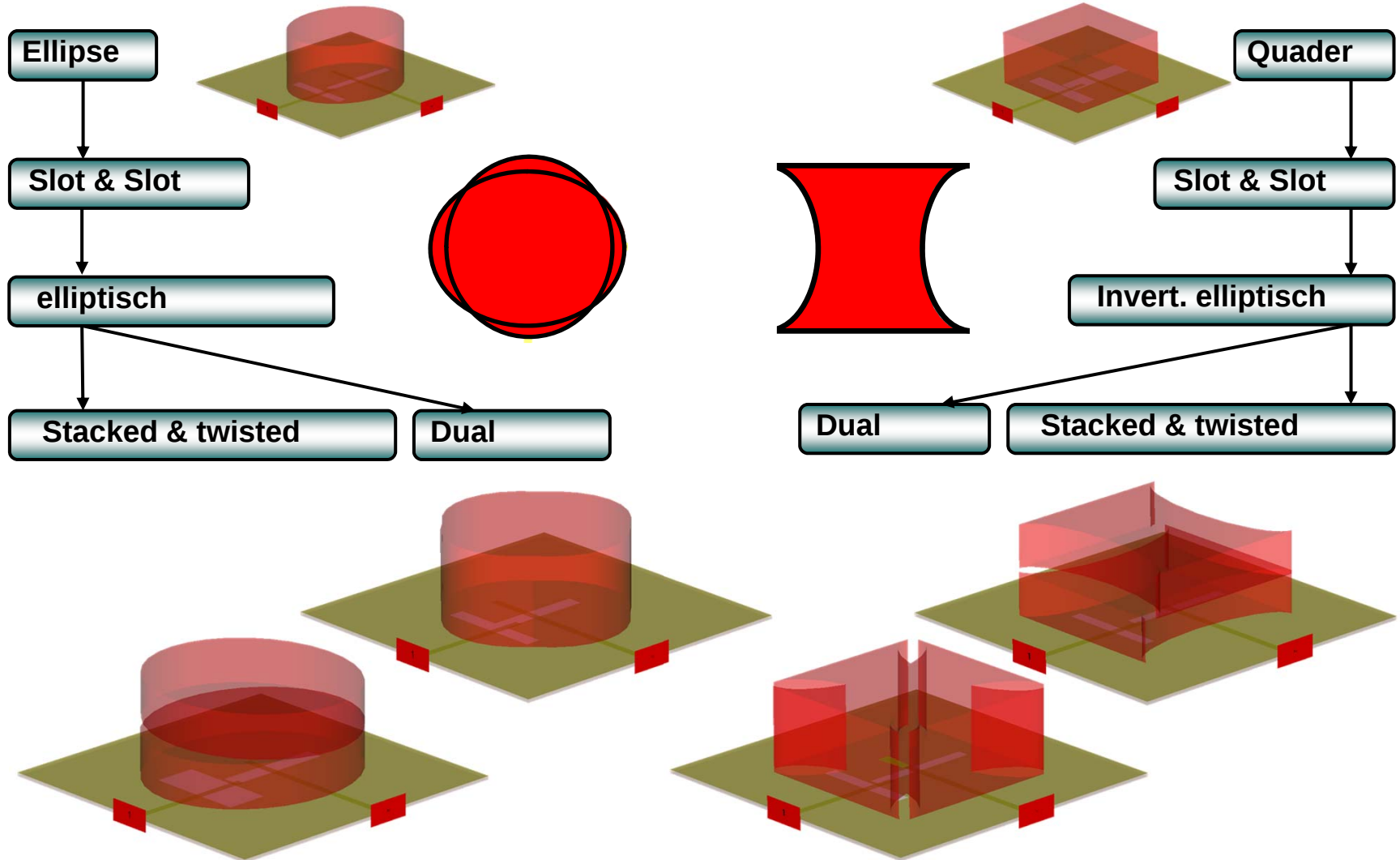
L-shape



T-shape



Ausgewählte Einzelelemente



Arrays mit Speisenetzwerken

