

Dr. A. S. Rukhlenko

# **Multistrip Coupler (MSC) Modeling: Two-Mode Approach**

## **Outline**

### **1. Normal Mode MSC Theory**

- 1.1. Concept of a multistrip coupler (MSC)
- 1.2. MSC modeling assumptions
- 1.3. Normal mode MSC representation
- 1.4. Boundary conditions
- 1.5. Two-mode approximation (symmetric/antisymmetric modes)
- 1.6. MSC scattering matrix

### **2. Properties of the Normal Modes in the Periodic Grating**

- 2.1. Wavenumber and SAW velocity
- 2.2. Reflection coefficient
- 2.3. Dispersion equation (stopband propagation)

### **3. Multistrip Coupler Models**

- 3.1. Reflective array model (RAM)
- 3.2. Coupling-of-modes (COM) model
  - 3.2.1. COM equations
  - 3.2.2. COM parameters
  - 3.2.3. Dispersion equation
- 3.3. Ingebrigtsen's field model
- 3.4. Morgan's quasi-static approximation

## **4. Modeled and Experimental Results**

4.1. MSC stopband and passband characteristics

4.2. Comparison with experimental data

## **5. Conclusions**