



Packaging requirements for Smart Antennas

- Founded in Enschede December 2009
- **Design & Manufacturing of Innovative microwave photonics components and beam forming networks**
- Applications: communication, observation, security and smart networks
- Chair of Point One R&D Project

Management Team



Paul van Dijk
CEO



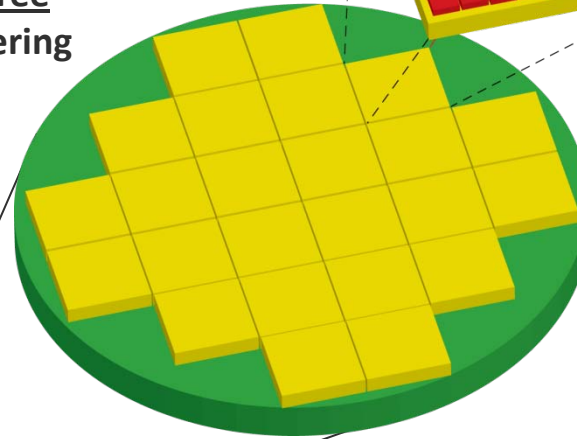
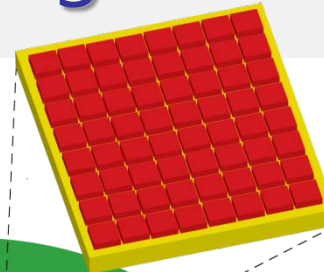
Chris Roeloffzen
CTO





Required :
Broadband,
continuous and
squint-free
beamsteering

Antenna tile



Solution :

Phased-array antenna with large number of elements

+ Photonic beamformer

To receive :
Digital video broadcasting via satellite (DVB-S) signal



Aim:

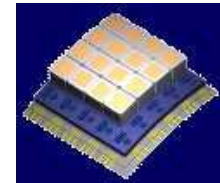
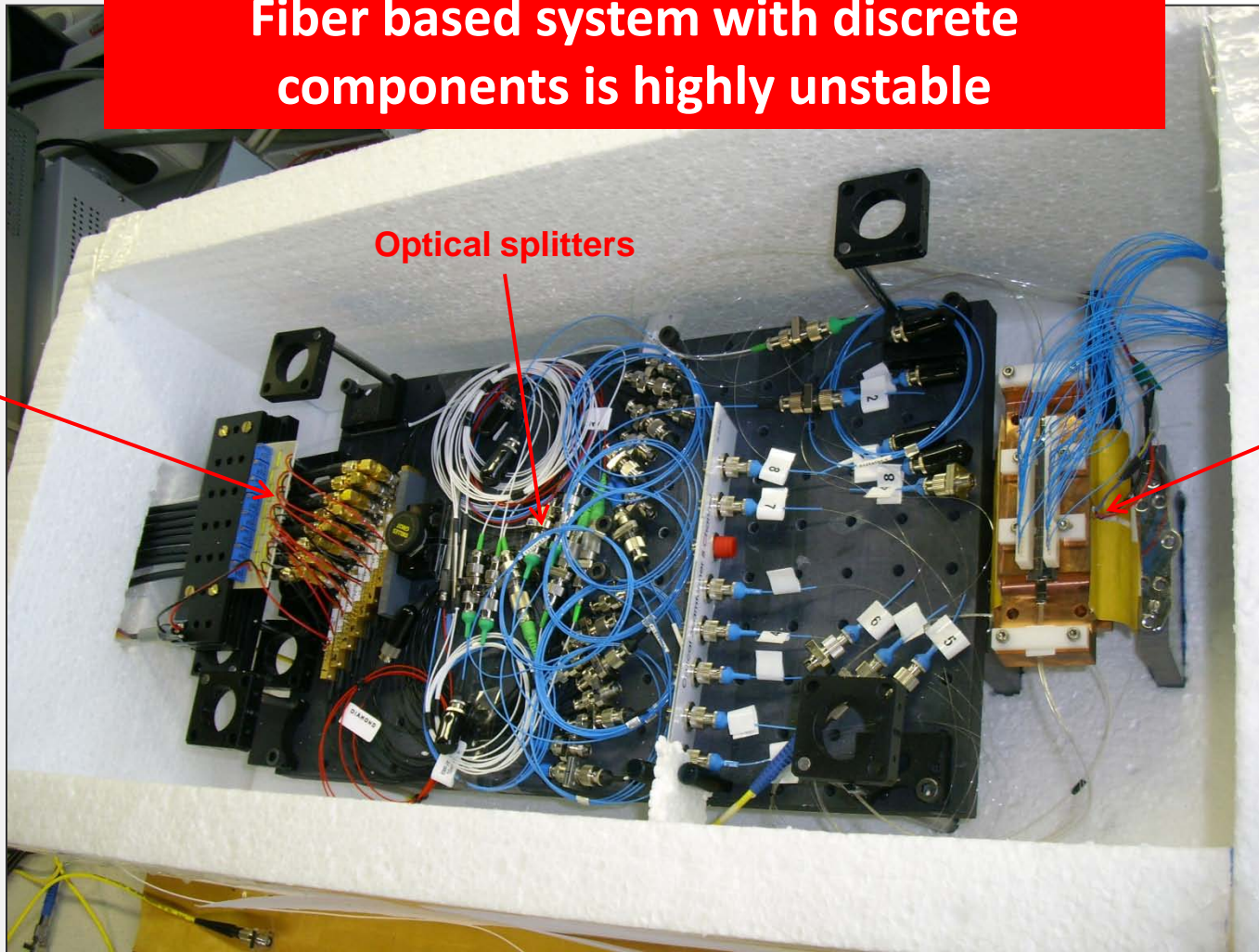
Live television channels and broadband communication at passenger seats

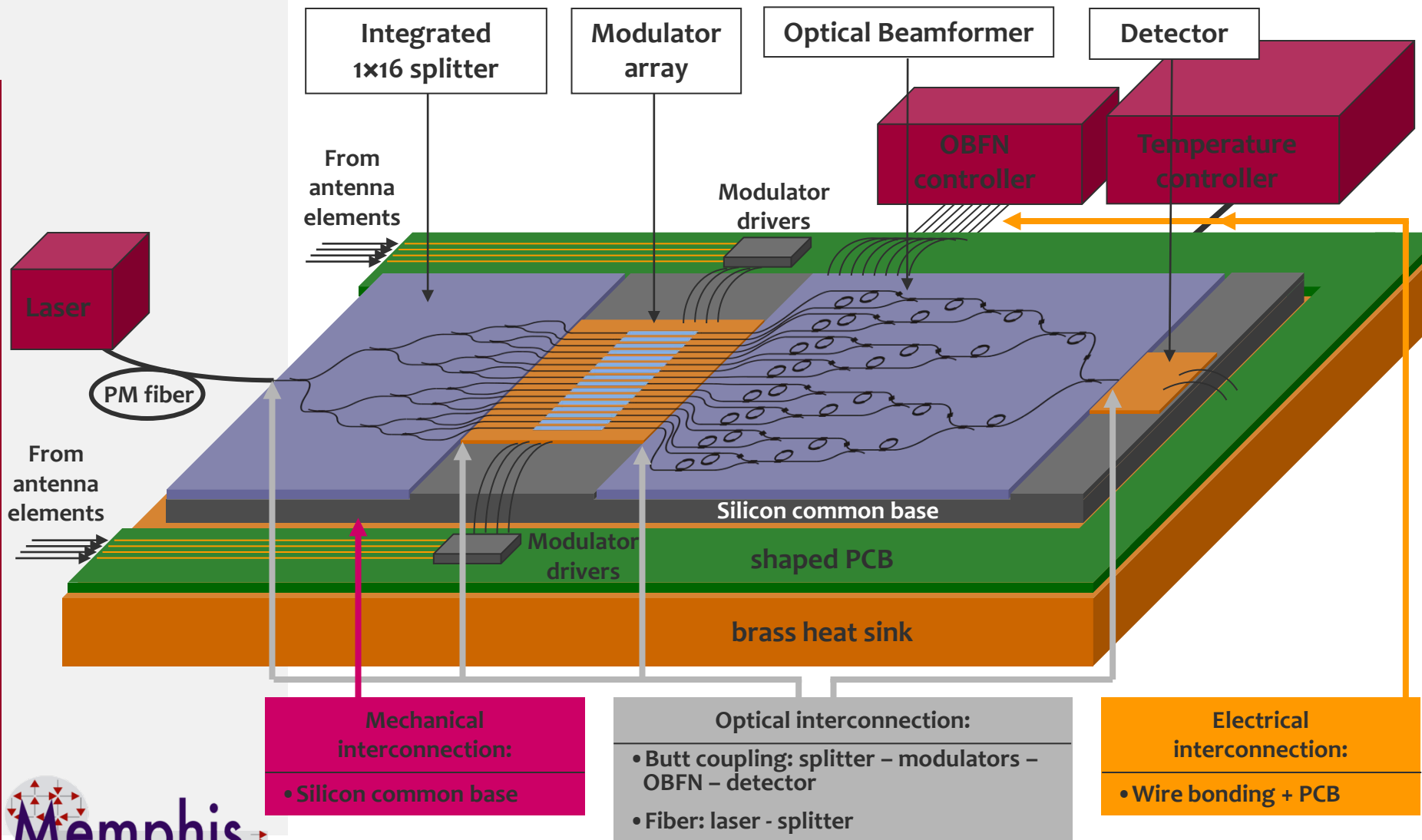
Fiber based system with discrete components is highly unstable

modulators

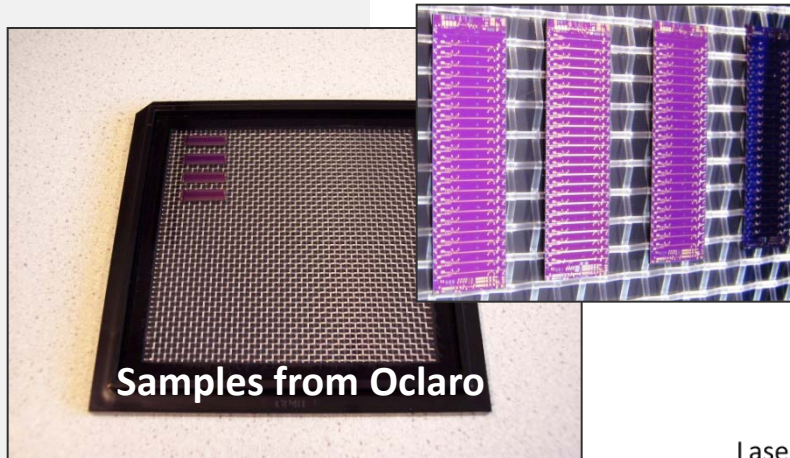
Optical splitters

chip

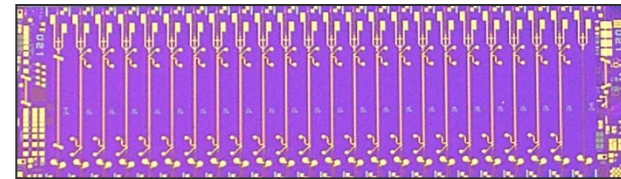




- A modulator array is absolutely necessary
- MZM array in InP technology from Oclaro
- Performance $\rightarrow V_{\pi} = 3.5 \text{ V} - 4.5 \text{ V} \rightarrow$ sufficient



Array of >25 Mach-Zehnder modulators



Aim: to integrate the modulator array in InP with the beamformer in TriPlex™

