

Dr. Michael Brandt (RPG)

Born	17.12.1971
Nationality	German
1992-1998	Studied Physics with second subject semiconductor technology at the RWTH Aachen while working as technical engineer for Dr. Volker Klocke & Stephan Kleindiek Nanotechnologie, Aachen and Fries Research and Technology FRT, Bergisch Gladbach.
1998-2004	Ph.D at Cologne University named "Superconducting Hot Electron Bolometers on Silicon Nitride Membranes for Terahertz Waveguide Mixers", a development for the SOFIA airborne telescope (NASA/DLR). Development of a micro assembly stage and automated device characterization facilities for the Herschel/HIFI SIS mixer development.
2002-2004	Technological adviser for "Verband Deutscher Anlagen und Maschinenbau, VDMA" for THz and micro-technology.
2004-now	Senior Research engineer and space project manager at Radiometer Physics

Experience and Expertise:

Technology Developments:

- Wear reduction and extended lifetime developments for nano motor technology
- Low temperature and cryogenic nano-motor technology developments
- Development of Micro-assembly stage with motorized gripper for mounting superconducting mixer devices for THz mixer integration
- Automated, database connected I/V and R/T device characterization setup for super conducting bolometer and SIS mixer device wafers
- Dielectric resonator locked W-band Gunn Oscillator development for space applications

Project Manager for several space projects at RPG:

- Herschel/HIFI (ESA): Up-converter
- MARFEQ (France/India): Gunn oscillator units and ortho-mode transducers (OMT)
- SAPHIR (France/India): Cavity stabilized Gunn oscillator units
- HY-2 (China): 37GHz Direct Detection Radiometer Receiver
- FY-3 (China): 50-58 GHz U-Band Down Converter Front End
- MetOp SG (EU):
- Sub-Millimetre Wave Receiver Front-end (Development Study)
 - o Phase A/B1 Sat-B CPI coordination and interface definition support
 - o Ice Cloud Imager Front End Bridging Phase
 - o MetOp Second Generation Satellites B Ice Cloud Imager (ICI) Instruments Phases B2 and C/D FRONT-END



Abstract: We present here the latest technology developments and preliminary design status of the Front End millimeter and sub-millimeter wave radiometer receiver for the Ice Cloud Imager in the framework of the joint ESA/EUMETSAT space mission – MetOp-SG.

It includes bread board model developments and first light antenna tests of the narrow 8 mm footprint antenna feed cluster array. Furthermore we will present Phase B2 Prototyping and Pre Evaluation tests to reach TRL 5 of state-of-the-art Schottky diode based mixers and multipliers and for MMIC amplifiers.