

**Stephen Arnold Maas**  
**238 E. San Antonio Dr.**  
**Long Beach, Ca. 90807-2623, USA**

Phone & FAX (autoswitched): +1-562-426-1639

Mobile +1-562-607-9320

E-Mail: s.maas@nonlintec.com

**AREAS OF SPECIALIZATION**

Low-noise, nonlinear, and large-signal RF/microwave circuits; computer-aided design of linear and nonlinear microwave circuits; intermodulation distortion, spurious responses, and related phenomena; nonlinear modeling of solid-state devices; microwave systems; mixers, power and low-noise amplifiers, frequency multipliers, microwave sources.

**EDUCATION**

- 3/84            Ph.D., Electrical Engineering, UCLA. Supported by a TRW Fellowship.  
Dissertation Title: *Theory of GaAs MESFET Mixers.*
- 12/72           MSEE, University of Pennsylvania, Electrical Engineering. Supported by a  
Ford Foundation Fellowship.
- 6/71            BSEE, University of Pennsylvania, Electrical Engineering.

**EXPERIENCE**

- 12/92 - present Nonlinear Technologies, Inc. Independent consultant specializing in low-noise and nonlinear circuit analysis and design.
- 7/90 - 12/92    Associate Professor (tenured), UCLA, Department of Electrical Engineering.
- 3/86 - 7/90     Adjunct Associate Professor, UCLA, Department of Electrical Engineering.
- 11/89 - 7/90    Independent consultant.
- 10/85 - 11/89   Aerospace Corp. Conceive, plan, and perform research in microwave electronics, especially nonlinear and low-noise circuits. Position title: Research Scientist.
- 8/81-10/85     TRW, Electronic Systems Group. Developed receivers and receiver components in the 1-45 GHz range, including mixers, amplifiers, and multipliers. Developed GaAs MESFET and HEMT low-noise amplifiers at frequencies up to 45 GHz. Developed the first active mixer above 45 GHz using a GaAs HEMT. Led the Microwave Advanced Development R&D project. Responsible for training of young engineers.

- 1/78-8/81 Hughes Aircraft Co., Space and Communications Group. R&D of advanced low-noise millimeter-wave receivers and components: mixers, FET amplifiers, filters, in microstrip, waveguide, and suspended stripline media. Developed mmW mixers with conversion losses below 3 dB. Led advanced development and R&D programs.
- 4/74-1/78 National Radio Astronomy Observatory. Developed the low-noise receivers for the Very Large Array. These two channel, four-band cryogenic radiometers used parametric amplifiers, mixers, and FET amplifiers between 1.2 and 24 GHz. Noise temperatures below 20 K were achieved. Also designed the back-end RF, analog, and control electronics and did thermal design of the cryogenics.
- 4/73-4/74 National Oceanic and Atmospheric Administration. Designed analog and digital electronics for a mobile LIDAR system used for atmospheric remote sensing.

### **OTHER ACCOMPLISHMENTS**

- Recipient of the 1989 IEEE MTT-S Microwave Prize and 2002 IEEE MTT-S Application Award
- Fellow of the IEEE
- Member of IEEE MTT Administrative Committee 1990-93
- Editor of the *IEEE Transactions on Microwave Theory and Techniques*, 12/89-3/92
- Inventor of the GaAs MESFET resistive mixer
- Author of the linear/nonlinear microwave CAD program C/NL2 and the nonlinear engine of Microwave Office
- Registered Professional Engineer in California (No. E 015422)

### **RESEARCH INTERESTS**

Nonlinear microwave circuit analysis; low-noise electronics, especially for microwave and mmW communications and radio astronomy; FET/HEMT applications; mixers; low-noise and power amplifiers; microwave systems; nonlinear computer-aided design; distortion phenomena; Volterra-series and harmonic-balance analysis.

### **PUBLICATIONS**

Approximately 100 publications on monolithic circuits, low-noise receivers and components, large-signal modeling, nonlinear distortion, and computer-aided design.

Books: *Microwave Mixers* (Artech House, 1986; Second ed., 1992), *Nonlinear Microwave and RF Circuits* (Artech House, 1988; Second ed., 2003), *The RF and Microwave Circuit Design Cookbook* (Artech House, 1998). *Noise in Linear and Nonlinear Circuits* (Artech House, 2005).