



KOLLOQUIUM

Institut für Elektrotechnik, Elektronik und Informationstechnik

Highly robust and highly linear low-noise amplifiers in GaN Technology

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Diskussionsleitung: Prof. Dr.-Ing. G. Fischer

It is well known that GaN high electron-mobility transistors (HEMTs) are excellent candidates for high-power broadband applications in the microwave and millimeter-wave range. However, the power-handling capabilities also can be beneficial in case of low-noise amplifiers (LNAs), e.g., in order to realize extremely linear LNAs. Extracted third-order output intermodulation points (OIP3s) as high as 43 dBm have been reported. On the other hand, highly rugged LNAs that survive high levels of overdrive input power for a certain time are also desirable for receiver front-ends in various applications. While GaAs-based LNAs typically require the available RF input power not to exceed approximately 20 dBm, it was reported that GaN-based LNAs survived measurements up to 36-dBm continuous wave (CW) and 46-dBm pulsed power. These LNAs offer interesting possibilities for simplified receiver front-end concepts since, e.g., an input protection circuit can be omitted that is required when using conventional technology.

This talk will give an overview of the state of the art in GaN LNA technology compared with established technologies, presenting details on LNAs fabricated in the GaN process of the Ferdinand-Braun-Institut.