

# EEI-KOLLOQUIUM

## Frontend-ICs for Impulse Radio Ultra-Wideband Radar Sensors

**Prof. Dr. Hermann Schumacher**

Universität Ulm

Institut für elektronische Bauelemente und Schaltungen

**Donnerstag, der 07.07.2011, 17<sup>15</sup> Uhr**

Cauerstraße 7/9, Hörsaal H15

**Diskussionsleitung: Prof. Dr.-Ing. R. Weigel**

Impulse radio ultra-wideband (IR-UWB) systems utilize large widths of unlicensed spectrum with low spectral power density by emitting short time domain signals. These systems can be used for simple short-range communication applications, and also for high precision radar sensors. Our group is working on the latter aspect, with applications in the medical field such as vital sign detection and tracking of interventional devices.

The talk will describe in detail several circuits which have been realized in IC form using a low-cost Si/SiGe HBT process. We will discuss pulse generation (e.g. an efficient pulse generator which can be tuned to cover the US, Japanese, and European spectral masks), and integrated correlation type receivers. Modules which combine these ICs with UWB antenna structures, and system validation experiments will also be covered.