**Preface**

The Internet of Things (IoT) will change our life dramatically: Laptops, tablets, and Personal Digital Assistants (formerly known as smart phones) translate spoken texts simultaneously in any language, answer semantical questions and support our daily life. Cars will drive autonomously, use current traffic intelligence to avoid congestions and warn others instantly in case of any danger. Household appliances communicate to each other and to local energy supply systems (e.g. photo voltaic or wind) to optimize energy usage and costs, order run out groceries independently and monitor our state of health. Personal robots overtake obnoxious tasks for us, entertain our kids and us, and surveil our homes against any hazard. Every object in the future factories is able to exchange data, work pieces may choose discretely their optimal process route and machines report maintenance issues betimes. And last, but not least, wearable electronics will accompany us in watches to control our vital functions, in shoes to detect our pace and in glasses to display essential information. Competent forecasters estimate that in a few years more than 50 billion mobile electronic devices will be connected to the internet.

All these kinds of innovative gimmicks applied in Cyber Physical Systems integrate sensory functions, electronic intelligence, energy storages, harvesting, and communication capabilities in tightest installation spaces on freely formed surfaces and in light plastic housings. All of them use antennas, which have to be designed spatially to boost their emitting performance. More and more there will neither be enough space for flat circuit board nor for other electromechanical parts.

These boundary conditions are the ideal nutrient medium for Mechatronic Integrated Devices. However, increasingly we will not only have to structure electric circuit tracks or antenna structures on 3D planes. In the near future, we will have to be able to print beyond that optical wave-guides, photovoltaic areas, organic light emitting diodes, dielectric and semi-conductive materials, sensory functions like strain gauges, proximity probes, capacitive reactance or heat flow measurement, and even actuators like miniaturized motors, piezo elements, or electroactive polymers.

Furthermore, for mechatronic functions to be applied on any kind of materials e.g. ceramics, fabrics, foils, paper/ carton, even skin, we have to develop our structuring, metallization or printing processes dynamically further. That is why, for the first time, we will present a special session on organic electronics to achieve synergies between MID and printed electronics and open up new markets for our unique technologies, materials, and processes.

Erlangen, September 2016 Jörg Franke