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Title:	**IC-based or SAW based wireless sensor nodes?**
Abstract:	Portable wireless sensor or actuator systems, like portable phones, remote control, or ID cards play an ever growing role in our industrialized environment. Those systems and many more were enabled due to the steady decreasing power consumption of high integrated ICs. Most such systems are powered by batteries or inductive coupling. In this presentation several concepts for an alternative power supply of wireless sensor or actuator systems are discussed in detail. Batteries, although today mostly used, suffer from a limited storage capacity, which induce a labour and sometimes cost-intensive periodic maintenance, and a problematic ecological impact. The operating range of inductive coupling systems is due to the near field limited to the aperture of the coupling coil. UHF systems operate in the far field and reach higher distances. Their operating range is limited by the distance where the voltage at the feeding point of the antenna becomes too low to drive the rectifier circuit. Larger read out ranges become feasible by omitting the rectifier stage. In this case we need either a passive frequency modulating device to shift the read out signal to a side band, or a resonator with a high quality factor, like a SAW or BAW device, to store the energy until all environmental echoes are feed away. For many applications, both indoor and outdoor, energy harvesting system become feasible which convert ambient power densities like light, RF fields, special or temporal thermal gradients, or mechanical vibrations into electrical supply power of the wireless system.

	All those systems strongly suffer from a lack of energy. Thus new concepts for lowering the power consumption of a wireless sensor or actuator system by keeping their features remain extreme important. Herby, a new wake up receiver is presented which operates on a current requirement as low as 3 micro A.