Introduction to Smart Grid Communications

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This talk covers communication systems and technologies for Smart Grid (SG) applications. Mainly, the following topics will be covered:

1. Smart Grid Communication concepts and integration of communication technologies to SG

2. Assessment of Wireless Communication Technologies for SG Applications:
   - Home Area Network (HAN), Neighborhood Area Network (NAN), and Wide Area Network (WAN)
   - Wireless Communication Technologies: ZigBee, Wi-Fi, Bluetooth, Cellular, and WiMax.
   - Review of experimental studies

3. Power Line Communications (PLC) in Smart Grid:
   - The role of PLC in the SG
   - High frequency modeling and matching of power lines for efficient communication
   - Effects of coupling and branches, filtering in power lines
   - Review of experimental studies

4. EMC and RF Exposure issues in Smart Grid and Smart Devices

5. Review of wireless sensor networks for smart grid applications

6. Smart Home Prototype tour on YTU campus
HAKAN P. PARTAL received his BS degree from Yildiz Technical University (YTU) in Istanbul, Turkey and his MS and Ph.D. degrees from Syracuse University, Syracuse, NY, all in Electrical Engineering. He worked as an RF/Microwave Design Engineer from 2001 to 2011, with Herley Industries in Boston, MA, Elcom Technologies in Rockleigh, NJ, and Anaren Microwave in Syracuse, NY.

Currently, he is an Assistant Professor with YTU and an Adjunct Faculty of Electrical Engineering with Syracuse University. His current activities include establishing an RF/Microwave R&D Lab and collaborations with RF & Wireless Industry, along with teaching and researching microwaves and wireless communication circuits at YTU in Istanbul. He has co-authored over 30 international journal and conference papers. He is a Senior IEEE member and, past Chair and current Vice Chair for the MTT/AP/EMC Chapter of the IEEE Syracuse Section.