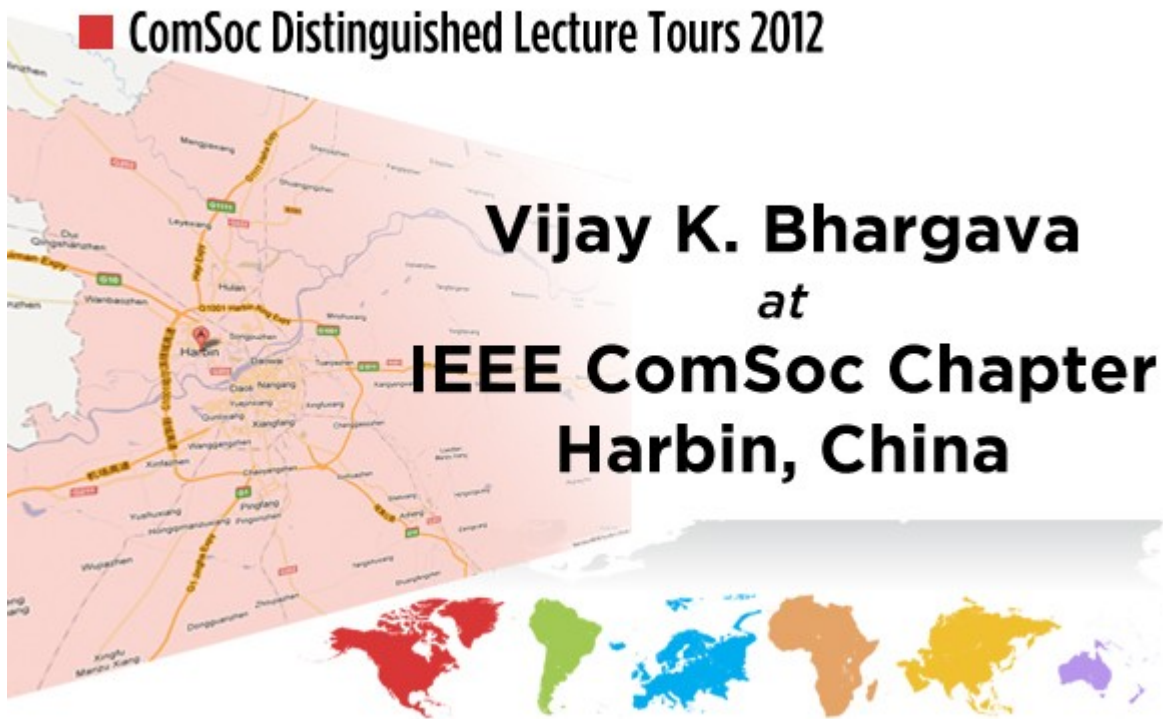


# Vijay Addresses Research Issues for Energy Efficient Cellular Networks during ComSoc Distinguished Lecturer Tour in Harbin, China



*(By Vijay K. Bhargava, President, IEEE Communications Society, University of British Columbia, Vancouver, Canada)*

The [IEEE Communications Chapter in Harbin Section](#) is a newly established Chapter in China. Its founding Chair is Professor Weixiao Meng of the [Harbin Institute of Technology \(HIT\)](#).

The Talk was rescheduled for Sunday, 19 August at 9:00 am in the morning as HIT was going to have a brief term break starting on 20 August.

Nevertheless there were 35 attendees and as many of them were not ComSoc members, I outlined the benefits of being a member during my presentation. A lively question answer session followed the talk.

## Research Issues for Energy Efficient Cellular Networks

### Abstract

The rising energy costs and carbon footprint of operating cellular networks have led to a trend in addressing energy-efficiency amongst the network operators and regulatory bodies such as 3GPP and ITU. "Greening" the wireless networks is a vast research discipline that needs to cover all the layers of the protocol stack and various system architectures and it is important to identify the fundamental trade-offs linked with energy efficiency and the overall performance.

In this talk, we identify four important aspects of a green networking where we would like to focus: defining green metrics, bringing architectural changes in base stations, network planning, and efficient system design. We begin with a brief discussion on energy efficiency metrics. Since Base Stations (BSs) consume a major chunk of input energy, we discuss the energy efficiency of BSs.

Next we discuss energy efficiency from a network planning perspective, based on smaller cells for heterogeneous networks. For system design, we put a special emphasis on cognitive and cooperative techniques in order to realize energy efficient cellular systems. Finally we discuss some broader perspectives and possible future trends in realizing a green cellular network technology.



**Vijay K. Bhargava**, *ComSoc President, Distinguished Lecturer*, (2<sup>nd</sup> row, 3<sup>rd</sup> from left), with Chapter Chair, Weixiao Meng (2<sup>nd</sup> row, 2<sup>nd</sup> from left), and attendees at [Harbin Institute of Technology \(HIT\)](#).

For information, visit [ComSoc Distinguished Lecturer Tours Program](#).

---

**Source URL:** <http://www.comsoc.org/blog/vijay-addresses-research-issues-energy-efficient-cellular-networks-during-comsoc-distinguished->

