Global
Communications
Newsletter

August 2011

# Distinguished Lecturer Tour of Prof. Sheila S. Hemami in India

*By Prof. Deergha Rao Korrai, Chair of the Communications and Signal Processing Societies Joint Chapter, Hyderabad, India*

The Distinguished Lecturer Program is one of the best initiatives of the IEEE. It brings distinguished experts to give lectures at Chapters on all continents. A DL tour of Dr. Sheila S Hemami, Department of Electrical and Computer Engineering, Cornell University, United States, in India in the month of March 2011. Lectures entitled "From Single Media to Multimedia — Perception, Coding, and Quality" and "A Signal-Processing Approach to Modeling Vision and Applications" were given in India from 22 to 28 March 2011 with the following schedule:

1. Pune,22 March 2011, "From Single Media to Multimedia — Perception, Coding, and Quality"
2. Hyderabad, 23 March 2011, "From Single Media to Multimedia" at Indian Institute of Technology
3. Hyderabad, 24 March 2011, "From Single Media to Multimedia" at Tata Consultancy Services, Deccan Park, Hi-tech City
4. Bangalore, 28 March 2011, "A Signal-Processing Approach to Modeling Vision and Applications" at Indian Institute of Science

*Dr. Sheila S. Hemami delivering the lecture at Pune.*

*Attendees at Dr. Sheila S. Hemami's lecture.*


*Mr. MGPL Narayana (Hyderabad section chair, third from right), Dr. Sheila S Hemami (fourth from left), Dr. Deergha Rao Korrai (chapter chair, third from left), and other IEEE volunteers of the Hyderabad section after the lecture at the Godavari auditorium of TCS.*

The IEEE Signal Processing Society funded Dr. Hemami's DLT. Her lectures in Hyderabad were organized by the Communications/Signal Processing Societies joint chapter of IEEE Hyderabad Section, and her lectures at Pune and Bangalore were organized by the Signal Processing Chapters of the respective sections.. During the talks at Hyderabad and Pune, Dr. Hemami focused on the development of single-media quality metrics for audio and visual information, contrasting it with the development of appropriate metrics for multimedia information. In this context, she described how humans perceive single-media information, how an understanding of perception has been incorporated into single-media coding and qualitymeasurement, and how the current understanding of multimedia perception has been applied to coding and quality measurement problems.

During her talk at Bangalore, she stressed the large gains realizable with current techniques by aggressively incorporating HVS characteristics, combined with a good dose of clever signal processing. She presented results from her laboratory characterizing the responses of the HVS to natural images, and contrasted these results with classical psychophysical results. She also presented applications of these results to image compression and quality assessment, as well as some signal processing problems (and their solutions) that emerged in applying the psychophysical results.

# *Digital Dividend Coagulates Central and Eastern Europe!*

*By Nicolae Oaca, Romania*

In September 2009, at the regional conference INFOFEST, Budva, Montenegro, ANCOM, the Romanian telecoms regulatory body, proposed a common regional approach for the digital dividend band usage and a regional event dedicated to this.

### *First Step: Aiming at a Common Approach*

On 30 March 2010, Bucharest hosted the first regional event on the digital dividend in Central and Eastern Europe: Digital Dividend — Challenges and Opportunities in the Region, organized by ANCOM and attended by regulators from 10 countries in the region: Bulgaria, Croatia, Greece, Hungary, FYR of Macedonia, Moldova, Montenegro, Serbia, Slovenia, and Romania.

The event aimed at developing a unified regional approach to the allocation of the digital dividend band: 790–862MHz, the spectrum to be freed up by the switchover from analog to digital TV. Allocating this band to mobile communications increases Internet penetration and has a significant economic impact by driving innovation, job creation, productivity, and competitiveness. Spectrum usage harmonization on a regional basis is needed for the scale economy, to drive down handsets and network equipment costs and make broadband access affordable to consumers and reduce region's digital divide. The low-frequency digital dividend band is ideally suited to the rollout of mobile broadband in rural areas in our region, where population density is lower than in Western Europe and scattered over large areas. The region's position on the EU borders makes coordination between states more complex, while the high number of multiple border issues threatens to complicate coordination further.

The main result of this first regional event on the digital dividend was a draft calendar of the switchover in our region.

### *Second Step: Agreement on a Regional Portal and a Regional Working Group*

Three months later, Belgrade hosted the South-East Europe Ministerial Summit on the Digital Dividend, organized by the Serbian Ministry of Telecommunications and Information Society on 15–16 June 2010. The event brought together regulators from 13 countries: Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Greece, Hungary, Italy, FYR of Macedonia, Poland, Romania, Serbia, Slovenia, and Turkey.

ANCOM, the Romanian regulatory body, proposed an instrument for enabling regional cooperation: a portal dedicated to the regional synchronization of the digital dividend band usage in our region, meant to accelerate common decisions on contest type and timing, technology to use, bundling digital dividend band and 2.6GHz band, and so on. ANCOM expressed its readiness to create and operate such a portal together with a working group with at least one representative from each country. The proposal was accepted, and the decision was included in the summit's final document. Therefore, the main result of the Belgrade summit was the agreement on a regional portal and a working group.

### *Third Step: CEE Regional Working Group Comes Alive!*

In March 2011 ANCOM prepared a draft version of the regional portal and invited the regulators in the region to join the regional project by nominating a representative in the Regional Group. In early April 2011, 12 regulatory authorities from 11 countries — Romania, Croatia, Moldova, Bosnia and Herzegovina, Serbia, Slovenia, Hungary, Montenegro, FYR of Macedonia, Albania, and Turkey — nominated their representatives to the Regional Working Group.


*Regional Working Group members.*

In early April 2011, the CEE Regional Working Group started consulting on basic working rules: language, consultation procedure, and technical functionalities of the portal.

On 2 May 2011, at the International Telecommunication Union (ITU) subregional seminar in Gyor, Hungary, ANCOM presented this regional project, and Brahima Sanou, the director of the ITU Telecommunications Development Bureau, promised ITU support for the initiative.

The main result of the third step is a functional Regional Working Group to deal with the regional portal and cooperation in the region.

### *Fourth Step: Kickoff Meeting; Agreed Portal Content and Working Rules*

On 12 May 2011, ANCOM organized the second regional meeting on regional cooperation on spectrum problems in Bucharest with large regional and international participation. On the same day, at the end of this event, the CEE Regional Working Group had its first meeting, deciding on the main issues in consultation: portal content, portal technical functionalities, and working rules. A representative of the ITU attended the kickoff meeting.

Therefore, the main result of the fourth step is an agreed framework.

### *Regional Portal*

According to the decisions of the kickoff meeting, the regional portal covers the following topics: Digital Dividend (the region, Europe, and World, auctions and other assignment methods), Events (contests, conferences, seminars, etc. in our region, Europe and World), Countries (every country has a page dealing with ASO process, digital TV progress, digital dividend, spectrum management, national market statistics), Working Group (documents elaborated by the Regional Working Group, forum), European Union (recommendations, documents, news), Other Topics (relevant websites: ITU, CEPT, EBU, case studies).

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# IEEE Milestones Dedicated to Guglielmo Marconi's First Experiments of Wireless Telegraphy

*By Stefano Bregni, Politecnico di Milano, Italy*

The IEEE Global History Network program has been established to preserve and promote the history of innovation in electricity and allied fields (http://www.ieeeghn.org). More than 100 IEEE Milestones have already been placed around the world.

The first IEEE Milestone in Italy was presented in Como in 1999 and dedicated to Alessandro Volta, inventor of the electrical battery in 1799. The dedication of two IEEE Milestones commemorating Gugliemo Marconi's first experiments in wireless telegraphy (1894–1895) was the second event of this program to occur in Italy and was sponsored by the IEEE Italy Section.

On 29 April 2011, the two IEEE Milestones were presented by IEEE President Moshe Kam during an official ceremony at Villa Griffone, Pontecchio Marconi, about 15 km from Bologna, Italy, to Guglielmo Marconi's daughter Maria Elettra Marconi Giovannelli, her son Guglielmo Giovannelli Marconi, and the President of the Guglielmo Marconi Foundation, Prof. Gabriele Falciasecca, with the participation of various authorities.

These two IEEE Milestones commemorate the life and pioneering work of Guglielmo Marconi, who opened the way to radio broadcasting, mobile telephony, and space communications. After the first experimental results of Heinrich Hertz (1887–1888) and Augusto Righi (1893) on free space propagation of radio waves, the young Guglielmo Marconi clearly envisioned the importance of their application for communicating over distance.

Only 21 years old, he conceived and successfully carried out his first experiments on outdoor radio transmission. During the summers of 1894 and 1895, Marconi conducted his experiments to assess the practical limits of transmission distances in his small laboratory in the so-called Stanza Dei Bachi (Silkworm Room) in the attic of the Marconi family's villa named Il Griffone. These very first experiments ended up with a successful transmission from a window on the first floor of Villa Griffone to the far side of the Collina dei Celestini (Celestini Hill) at the remarkable distance of about two kilometers.

*The laboratory in the Stanza Dei Bachi (Silkworm Room) of Villa Griffone, where Guglielmo Marconi conducted his early experiments. From this window, Marconi transmitted successfully a radio signal to the far side of Celestini Hill at a distance of about 2 km.*

*A famous photograph of Guglielmo Marconi in 1896.*

*Presentation of the IEEE Milestone in front of Celestini Hill. From left to right: Stefano Mazzetti, Silvano Donati, Francesco Vatalaro, Gabriele Falciasecca, Maria Elettra Marconi, Ivano Dionigi, and Moshe Kam.*

The two IEEE Milestones plaques were placed at Villa Griffone and in front of Celestini Hill, to mark the first successful outdoor transmission of radio signals beyond a natural obstacle. The plaques bear the following citations:

**Marconi's Early Experiments In Wireless Telegraphy, 1895**

*In this garden, after the experiments carried out between 1894 and 1895 in the Silkworm Room in the attic of Villa Griffone, Guglielmo Marconi connected a grounded antenna to its transmitter. With this apparatus the young inventor was able to transmit radiotelegraphic signals beyond a physical obstacle, the Celestini hill, at a distance of about two kilometres. The experiment heralded the birth of the era of wireless communication.*

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## MARCONI MILESTONES/*continued from page 3*

**Marconi's Early Experiments In Wireless Telegraphy, 1895**
*On this hill, during the summer of 1895, the radiotelegraphic signals sent by Guglielmo Marconi from the garden of Villa Griffone were received. The reception was communicated to Marconi with a gunshot. This event marked the beginning of the new era of wireless communication.*

The IEEE Milestones in Electrical Engineering and Computing program honors significant technical achievements that occurred at least 25 years ago in technology areas associated with IEEE. To date, more than 100 Milestones have been approved and dedicated around the world.

The Welcome Address of the IEEE Milestone Dedication Ceremony was given by Prof. Gabriele Falciasecca (President of the Guglielmo Marconi Foundation), Prof. Ivano Dionigi (Rector of the University of Bologna), Prof. Silvano Donati (Past Chair of the IEEE Italy Section), Prof. Francesco Vatalaro (Chair of the IEEE Italy Section), and Stefano Mazzetti (Mayor of Sasso Marconi). Then the two plaques were presented by IEEE President Moshe Kam. Elettra Marconi gave a short speech commemorating her father Guglielmo.

Later, the IEEE Milestone Dedication Ceremony was also the occasion for a half-day workshop entitled "Past, Present and Future of Radio Technology" featuring keynote talks and Panel Sessions. Prestigious speakers were invited to present their views regarding the evolution of wireless communications.

The Opening Address of the Workshop was given by Corrado Calabrò (President of AGCOM, Italian Authority for Communications) via teleconference.

The IEEE Panel Session was chaired by Prof. Silvano Donati, Past Chair of the IEEE Italy Section. Prof. Stefano Bregni (Member at Large of the IEEE Communications Society Board of Governors), Marko Delimar (Chair of IEEE Region 8), and Moshe Kam (President of the IEEE) provided their views on IEEE activities related to wireless communications.

The Keynote Address was given by Sandro Dionisi, Director of TILAB, Telecom Italia. The Marconi Junior Award was presented by Prof. Falciasecca.

The Industry Panel Session was chaired by Raffaele Barberio, Director of the *Key4Biz* daily newsletter. Giuliano Berretta (President of Eutelsat Communications), Stefano Ciccotti (CEO of RayWay), Massimo Comparini (VP R&D of Thales Alenia Space), and Achille De Tommaso (President of Anfov) presented some highlights of current industry trends.

The Institutions Panel Session was chaired by Prof. Francesco Vatalaro, Chair of the IEEE Italy Section, and featured Prof. Giovanni E. Corazza (Director of the Dept. of Electronics, Computer Sciences and Systems of the University of Bologna), Giacomo Mazzone (Director Audit EBU), and Roberto Viola (General Secretary AGCOM and VP Radio Spectrum Policy Group).

The Workshop was concluded by an outstanding talk by David N. Payne, Chairman of the Marconi Society.


Global Communications Newsletter

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A publication of the IEEE Communications Society


## DIGITAL DIVIDEND/*continued from page 2*

The main aim of our regional portal is to become a one-stop shop for telecommunications in our region and to gather around it all regulators in our region for cooperation in the benefit of our countries. The portal is targeting regulators, operators, vendors, investors, consultants, international organizations, EU bodies, and end-users.

### *Regional Working Group*

The Regional Working Group is composed of 16 members representing 12 authorities from 11 countries (Moldova is represented by ANRCETI, regulator, and CNFR, agency for frequencies): deputy directors (4), directors (3), heads of regions, managers, experts, and advisers.

The main task of the Regional Working Group is to make decisions on the regional portal content, to upload and refresh the relevant information, debate topics of interest in our region and cooperate with similar entities.

A reference point in this story was the 2010 German contest, an ascending auction which sold frequency licenses in four bands (800 MHz, 1.8 GHz, 2.0 GHz, and 2.6 GHz) in 29 bidding days (12 April–20 May) and 224 bidding rounds, raising €4.385 billion, of which €3.358 billion, or 81.6 percent, came from the digital dividend band.

The digital dividend band is the starting point in a regional cooperation in Central and Eastern Europe, while the future could reveal many other regional common topics. Central and Eastern Europe are betting on the digital dividend band and cooperation.