



## A Report on the Third National EW Workshop India – EWWI 2015

held during 11 to 13 February 2015 at NSSC, Indian Institute of Science, Bangalore, India

The India Chapter of Association Old Crows has concluded the Third National EW Workshop India – EWWI 2015, a three day intensive Workshop, at NSSC, Indian Institute of Science,



Bangalore. The Workshop was the third in the very popular EWWI series, imparting training in the latest developments in the field of EW. In addition, it provided a great opportunity for the EW Community in India to come together on to a common platform. The workshop was inaugurated by Col Shankar, CEO, Alpha Design Technology Limited, Bangalore, in the presence of President of AOC India Chapter, Dr U K Revankar and Vice

President, Mr T N Yadgiri Rao. The Workshop was attended by around 150 delegates from Defence Research and Development Organisation, Bharat Electronics Ltd, Indian Armed Services and EW Industry.

During the inauguration of the Workshop, the Organisers and Delegates paid Homage and expressed their Heartfelt Condolences on the Sad Demise (On 2<sup>nd</sup> Feb 2015) of Dr Richard Wiley, RAF



Inc., USA who was mainly instrumental in realising the EWWI 2015 Workshop.

While welcoming the Speakers and Delegates, Dr Revankar stated that India needs to move forward to become a developer of total EW Systems rather than designer-integrator of them, that too at a fast pace. He said that increasing role of EW in the modern warfare would not allow India to ignore or delay acquisition and operationalise latest EW Technologies into the EW Systems of the Indian armed forces with or without foreign acquisition / collaboration.

The Workshop was conducted by the very eminent professor and author, Dr Phillip E Pace, from Naval Post Graduate School, USA. The course covered topics based on large research experience of both Dr Richard Wiley and Dr Philip E Pace in the field of Signal Processing, LPI Signals, De-interleaving Techniques, Advance Radar Techniques and Digital Receiver Technologies. The course coverage had been very comprehensive covering all the important areas in the field of Electronic Warfare / Information Warfare arena. The two volume course materials (both hard copy and soft copy) provided to delegates would serve as a reference book for on-going developmental activities in the field of EW in India.



Following Topics were covered in the three day intensive course:

- 1. EW as it relates to IW,ESM and ELINT**
- 2. Generic Radar Signals and Intercept Receivers**
- 3. Probability of Intercept Problems and Solutions**
- 4. Modern Signals – LPI Radars**
- 5. Future ESM Receiver Concepts**
- 6. Antenna Consideration and Direction Finding**

7. PRI Sorting and Analyses Methods
8. Typical RWR uses of ELINT Data
9. Applications of Modern EW Systems and Technologies
10. Intercept Receiver Strategies and Signal Processing for Detection/Classification of Stealth Radar signals
11. Phase Shift Keying Techniques
12. LPI Radar Analyses using Quadrature Mirror Filtering

Dr Phillip E Pace was felicitated by the AOC India Chapter on behalf of Indian EW fraternity recognising the immense contributions made by him in Current Areas of EW Technologies.

In addition to Dr Philip's course, Four Invited Talks were presented in the Workshop as a practical application / experience in the state-of-the-art products in the field of EW.

The invited talks covered the following topics:

- **Next Generation Radar/EW Simulation using COTS Equipment**  
By Mark Elo, Giga-tronics, USA
- **L-3 Narda-Miteq Products and Capabilities**  
By Tom O'Rourke, Narda, USA
- **Architectures for Simulation-in-Loop Testing**  
By Tarun Gupta, National Instruments, India
- **Simulating the Modern Threat Environment using next Gen Signal Generators**  
By Sonali Sarpotdar, Keysight Technologies, India



The **EWWI 2015** was realised by the AOC India Chapter with the generous support of the Sponsors of the event both technically and financially. The Sponsors had also displayed the latest EW products in the accompanying technical exposition at the Workshop venue. Delegates and Invitees visited the exhibition booths throughout the Workshop. All the Delegates were given a participation certificate.