

I N M E M O R I A M

Professor Emil Atanasov Semerdjiev, D.Sc.

4 June 1956 – 30 August 2001



The talented scientist with many achievements is no longer among us. Bulgarian science lost one of its best experts in the field of multiple sensor data fusion.

Emil Semerdjiev received M.Sc. and Ph.D. degrees in avionics from Zhukovsky Air Force Engineering Academy, Moscow, Russia, in 1978 and 1981. In 1990 he received Doctor of Sciences degree in Radar Data Processing and Navigation from the “G.S. Rakovski” Defense and Staff College, Sofia, Bulgaria. From 1982 to 1990 he led the Mathematical Modeling and Computer Programming Department of the Institute of Special Electronics of Bulgarian Defense Industry. Since 1995 he was Head of Mathematical Methods for Sensor Information Processing Department at the Central Laboratory of Parallel Processing, Bulgarian Academy of Sciences. In parallel, he was teaching Information Processing in Air Traffic Control System at the Department of Air Transportation at the Technical University of Sofia. He led numerous research projects in the areas of multisensor data fusion, multiple target tracking, advanced parallel data processing, information modeling and learning, classification, information security and information warfare.

Prof. Semerdjiev was member of the International Academy of Information Processes and Technologies (IAIPT), Moscow, and the Armed Forces Communications and

Electronics Association (AFCEA). He was among the creators of the International Association of Information Fusion (ISIF), which unites scientists from all over the world. He was the only representative from South East Europe at the first international forum FUSION'98 in Las Vegas, USA, conducted under the patronage of research centers of the US Army, Navy and Air Force and the biggest aircraft and shipyard companies. He was plenary speaker at the international forums in Las Vegas (1998), Paris (1999), Pitlochry, UK (2000), etc.

Professor Semerdjiev was author and co-author of over 100 papers published in international and Bulgarian journals. His work is of great value to all students, specialists and scientists, working in the field of sensor data processing.

LIST OF SELECTED PUBLICATIONS

1. Emil Semerdjiev, *et.al.*, "Adaptive Interacting Multiple Model Algorithm for Maneuvering Ships Tracking," in *First International Conference on Multisource – Multisensor Information Fusion* (Las Vegas: 1998), 974-979.
2. Emil Semerdjiev, *et.al.*, "Manoeuvring Ship Model Identification and IMM Tracking Algorithm Design," in *First International Conference on Multisource-Multisensor Information Fusion '98* (Las Vegas: 6-9 July 1998), 968-973.
3. Emil Semerdjiev, *et.al.*, "An Approach for a Fast Reduction of the Full Ignorance in the Target Identification Process," in *First International Conference on Multisource – Multisensor Information Fusion* (Las Vegas: 1998), 986-991.
4. Emil Semerdjiev, *et.al.*, "Multiple Sensor Data Association Using Hough Transform for Track Initiation," in *First International Conference on Multisource-Multisensor Information Fusion '98* (Las Vegas: 1998), 980-985.
5. Emil Semerdjiev, "An IMMPPDAF Solution to Benchmark Problem for Tracking in Clutter and Standoff Jammer," in *Proceedings of the First European International Conference on Data Fusion Eurofusion'99* (Stratford, UK: 5-7 October 1999), 123-128.
6. Emil Semerdjiev, *et.al.*, "An IMM Algorithm for Stochastic Systems Control," in *Proceedings of the First European International Conference on Data Fusion Eurofusion '99* (Stratford, UK: 5-7 October 1999), 49-54.
7. Emil Semerdjiev, *et.al.*, "An Adaptive IMM Filter for Aircraft Tracking," in *Second International Conference on Multisource – Multisensor Information Fusion*, Vol. 1 (Sunnyvale, USA: 1999), 937-942.
8. Emil Semerdjiev, *et.al.*, "Detection and Localization of Faults in System Dynamics by IMM Estimator," in *Second International Conference on*

Multisource – Multisensor Information Fusion, Vol. 1 (Sunnyvale, USA: 1999), 770-775.

9. Emil Semerdjiev, *et.al.*, “Variable and Fixed Structure Augmented IMM Algorithm Using Coordinated Turn Model,” in *Third International Conference on Multisource-Multisensor Information Fusion’2000*, Vol.1 (Paris, France: 2000), 25-30.
10. Emil Semerdjiev, *et.al.*, “Application of a Monte Carlo Method for Tracking Maneuvering Target in Clutter,” *Mathematics and Computers in Simulation* 55, 1-3 (February 2001): 15-23.
11. Emil Semerdjiev, *et.al.*, “On-line State Estimation of Maneuvering Objects by Sequential Monte Carlo Algorithm,” in *Third International Conference on Large-Scale Scientific Computation* (Sozopol, Bulgaria: June 6-10 2001).
12. Emil Semerdjiev, *et.al.*, “Stochastic Sampling Algorithm for Tracking two Closely Spaced Maneuvering Objects in Clutter,” in *4th International Conference on Information Fusion* (Montreal, Canada: August 2001).
13. Emil Semerdjiev, *et.al.*, Patents: 60224A # 96445/ 21 June 1992 - Automatic Complex for radar information processing and transmission; 50808/20 April 1988 -Radar Simulator; 215 - Universal Radar System Simulator and Trainer for Radar Operators.