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Editors

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Introduction

In 2012, we lost two great infrared thermographers and scientists with the passing of Sven-Åke Ljingberg in June and Ermanno G. Grinzato in August. I knew and very much respected the work of both of these fellows. When I first came to ThermoSense in the late 80s, I was in awe of Sven. He was showing helicopter infrared imagery. Imagine…flying around with infrared cameras! I was very much inspired by him. Ermanno was a thermographer's thermographer, and a great human being. We all miss him.

We continue to see big improvements in IR sensor technology with megapixel cameras going from 1x1 to 2x2 to 4x4. Hoorah! On the other end of the "spectrum", the low-cost infrared imagers are more popular than ever, with the prices falling quickly to the point where the training cost is more than the camera cost. This enviably means misuse of the technology, but I tend to look at it in a different way: Every time the price drops to a new lower level that means whole new markets open up and whole new groups of people begin to use infrared technology! It is the job of ThermoSense to offer people a place to learn about thermography applications at the highest level. I believe we have done that very well in the past, and will continue to do so well into the future.

It has been a great privilege to serve as Chairman. I would like to thank the Session Chairs and my Co-Chair Fred Colbert who spent their valuable time to organize the conference, review the papers and run the sessions. On their behalf, let me express the Program Committee's deepest appreciation to the authors who write and present their work freely, and without whom there would be no ThermoSense. Finally, I would like to thank the SPIE staff, who might not realize how much we appreciate the amount of work they do each year to make our great conference happen.

On behalf of the Program Committee, I am honored to present the Proceedings of ThermoSense XXXV.

Gregory R. Stockton

Dedication Sven-Åke Ljingberg

Sven-Åke Ljingberg passed away on June 14, 2012 after a battle with cancer. He was instrumental in the early development of SPIE Defense, Security, and Sensing (DSS), and the building of the AeroSense Conference.

He authored and submitted 15 papers starting with DSS 1989-2002, and served as a session chair 13 times, from 1992-2004.

Sven-Åke was always very positive and extremely dedicated, full of bright ideas, most of them were more than just ideas, he managed to bring them forward and produce good test results from them even if it sometimes seemed to be difficult and complicated.

He was always very nice to work with and never really complained even when we had big problems during the different development phases.

- Jon Gawell

He was my co-chair for the Building session for many years and was always a pleasure to work with, despite our geographical distance. I also believe he was the first international member of the steering committee outside of North America. In the years I was most active with Thermosense, I remember making a point of reaching out to the Europeans, and others, to expand the international claim Thermosense had. Sven was a big help in this matter, as I really had no idea what I was doing, only that I was trying.

He was always professional, punctual and reliable.

- Sharon Allen Semanovich

It was sorrowful to hear about my old colleague and good friend even though I knew about his illness. Sven-Åke is one of the most noticeable figures in the field of thermography.

- Timo Kauppinen

Sven-Åke Ljungberg was long absent at Thermosense due his illness and also because his father's illness. His headquarters was in Gävle in Northern Stockholm, Sweden. Sweden was one of the first countries to start with thermography and Sven-Åke one of its pioneers. All works on energy-saving and buildings were his field but also he always was on the leading edge in other diverse research topics. I learned a lot from him. He was already established at Thermosense when I started to participate at the conference.

He was a very warm person and was always willing to provide cooperation. One of the great figures of the early hours of Thermosense…a gentleman above all.

- Andres E. Rozlosnik

I remember Sven and Owe gathering around a piano and giving us an impromptu concert (Sven singing) during a consortium meeting near the Spadeadam test site in the North of England, in a hotel that happened to have a piano. I also remember him strumming his guitar in his on-site "accommodation" (a caravan?) on the Malmoe test site.

He was a lovely person to work with.

- Jane Hodgkinson

Dedication Ermanno G. Grinzato

I regret to announce that Ermanno Grinzato passed away last night 21 August, 2012.

His illness prevailed in the last period but he was lucid until the end discussing of future works and giving advises on the things to do.

We lost an enthusiastic scientist and a friend.

- Paolo Bison

http://www.qirt.org/image_site/Grinzato_obituary_2012.pdf

From a personal point of view, he was a very amiable person, with a great sense of humor, especially in social life. He liked to pun with words and his brilliant mind amazed friends, sometimes highlighting unexpected aspects in the topic of discussion. It was remarkable his ability to motivate his collaborators, inspiring enthusiasm for new achievements and promoting new ideas, or as he used to say 'ideucce', pretty small ideas brought to his mind during the night.

He loved nature and to live in nature. He practiced equestrian sports and used to ride during the weekends. His ultimate desire was to be cremated and his ashes be scattered in the garden as humus for plants.

He is survived by his beloved wife Luciana and son Alessandro.

- Paolo Bison

Thermosense gave me a chance to meet Ermanno first in 1991. He invited me to visit shortly, his laboratory in Padua, and since that time my 'short' visit turned to be a multi-year collaboration with Ermanno and his colleagues Paolo Bison and Sergio Marinetti. As a matter of fact, I spent about 4 years in Italy densely collaborating with Ermanno. I looked into my list of publications and found that Ermanno was my co-author in about 40 papers.

I have always appreciated his scientific enthusiasm (I would even say his scientific curiosity) and professional features that made him an outstanding expert on IR thermography and its applications not only in Italy but worldwide. In fact, Ermanno was one of a few researchers who made Italy so noticeable on the map of IR thermography and thermal NDT. He contributed so much to NDT of art objects, thus bringing a spirit of Italian history to the contemporary technology.

It was an honor for me to be a guest at Ermanno's lovely house, to meet his wife Luciana and follow how his son Alessandro is growing up. I used to play lawn-tennis, table tennis and volley-ball with Ermanno for years. In Russia, we often say that death first takes over the best people. This is very true about Ermanno. It's hard to believe that we will not be meeting him at our international events.
But people are with us as long as we remember them. Ermanno is “with us”.

- Vlad Vavilov

Ermanno presented many papers and has also collaborated as session chair on several occasions. Ermanno was a person who worked permanently keeping the conferences alive from his first participation from 1999- 2000. He presented papers in many fields as a principal and secondary author. When Ermanno was listening to a paper in a particular session he always had an appropriate question for the author - no matter what the application was.

He was a very detailed person, very critical, a perfectionist, a highly-educated person. Not only have I shared time with Ermanno at Thermosense, but also in QIRT Europe, in Buenos Aires and in Patagonia Argentina (Neuquén). He did a great job of representing Italy. I have many stories with Ermanno maybe not only academic, but professional and personal. He was very full human being and professional person. Ermanno was a very friendly and kindly, sociable person also.

His family and Italy must be very proud of him. His death is a hard thing to understand I regret I did not share other times with Ermanno. God took him too young.

- Andres E. Rozlosnik

Ermanno was an excellent scientist and a great person to talk to. I hope that God rest his soul.

- Nico Avdelidis

My deepest commiseration with Ermanno`s family and colleagues – I knew him almost 25 years and had great opportunity to work with him in Padova in 1995. We had continuous contacts dealing with thermography and it´s applications.

- Timo Kauppinen

I was shocked at the sad news. It is unbelievable that Ermanno is no more on this Earth. I pray with my deepest condolences. I'll never forget his warm smile in our discussions. We lost a great lodestar in our research field and a friend. …May his soul rest in peace.

- Takahide Sakagami

I'm very sorry to hear that Ermanno passed away. Please tell his family that he was a both a respected scientist and a friend to many of us in the IR/Thermosense community. He's been part of Thermosense for many (15-20) years. I had emailed Ermanno occasionally in recent months and was hoping his condition would improve. I'll miss him.

- Doug Burleigh

My deepest condolences go to Ermanno's family and colleagues at CNR-ITC and around the world. Ermanno was always a dedicated scientist in the area infrared thermography and brought out the best in his peers. He was no different in his personal life. I had the pleasure of knowing and working with him for over 26 years, and I shall forever treasure our times together along with the continuous correspondence through the years.

His kindness and integrity as a personal friend was shared with my family from the first time he traveled to Canada in 1986. My family and I are deeply saddened by this loss and send our regards to his family in Italy.

- Tony Colantonio