



Sergio Focardi

1932-2013

Sergio Focardi—well-known collaborator of Francesco Piantelli and Andrea Rossi on nickel-hydrogen processes—passed away on June 22 after a bout with cancer.

Focardi was born in Florence, Italy in 1932. He began teaching general and experimental physics at the University of Bologna (Italy) in 1956, serving as Dean of Faculty for Mathematical, Physical and Natural Sciences in the 1980s. Focardi was named Emeritus Professor in 2004. Bill Collis, a friend of Focardi for many years, noted of Focardi's professional pursuits: "He was interested in gravitational anomalies and in particular tried to measure the effects of a reservoir when full or empty, taking into account the subsidence of the underlying land." Professor Focardi served on the Board of the Italian Physical Society and for three years directed the Bologna branch of the Italian National Institute of Nuclear Physics.

During Focardi's funeral on June 24, his friend and colleague Francesco Celani related the story of how they met in 1976. Celani recalled, "I was fresh off getting my degree from Rome University and attended my first meeting of the Italian Physical Society. I was quite nervous. I spoke with the secretary about paying the fee for the meeting. I was dressed formally and when I reached for my wallet to pay the fee, I realized that I had left my wallet in my casual clothes back at the hotel, which was rather far away. Professor Focardi, who was organizer of the meeting, offered to pay for me because I had 'a nice, presentable appearance.' I accepted his kind offer and later that day repaid him. After that fortuitous event, we met regularly at the Frascati Laboratories (where I worked) and CERN in Geneva. We had common friends and took dinner together several times, partaking of good Italian wine (which is very expensive in Switzerland)."

In the early 1990s, Focardi, Piantelli and Roberto Habel began to develop a nickel-hydrogen thermal reactor based on a process discovered by Piantelli in late 1989. Our founder, the late Dr. Eugene Mallove, was on hand at a seminar given by the trio at the University of Siena in February 1994. He reported in *Cold Fusion* ("An Italian Cold Fusion Hot Potato," May 1994, Vol. 1, #1) that the group achieved their "first major success in producing excess heat" in the spring of 1993—"a few tens of watts excess power." Also present at the seminar were Celani and Professor Giuliano Preparata. Celani was impressed with the system, but voiced concerns about how input power was measured. Preparata said, "I found the whole thing very convincing and very beautiful." Collis said that Focardi "was particularly pleased that excess heat, neutrons, charged particles as well as gammas were all measured."

Focardi *et al.* published three papers on the subject in *Il*

Nuovo Cimento A: "Anomalous Heat Production in Ni-H Systems" (January 1994, Vol. 107, #1, 163-167); "Large Excess Heat Production in Ni-H Systems" (November 1998, Vol. 111, #11, 1233-1242); "Neutron Emission in Ni-H Systems" (Compilation 1976-1996, Vol. 112, #9, 921-931)

After the 1994 Siena seminar, Focardi and Celani worked more closely together. Meanwhile, a few unsuccessful replication attempts were made between 1996 and 1999, at CERN and the University of Pavia. In 2004, Celani and his wife, Japanese chemist Misa Nakamura, visited Focardi at the University of Bologna. They were seeking Focardi's help in getting the Italian Physical Society journal *Il Nuovo Saggiatore* to publish an important paper by Yoshiaki Arata that Nakamura had translated from Japanese to English. Celani recognized that Focardi had much sway with the Society, and the paper was "published almost immediately" ["The Formation of Solid Deuterium Solidified Inside Crystal Lattice and Intense Solid-State Nuclear Fusion ('Cold Fusion')," Vol. 20].

In 2007, Focardi began collaborating with Andrea Rossi, which has resulted in development of the E-Cat (energy catalyzer); the device uses the nickel-hydrogen reaction first initiated by Piantelli, Focardi and Habel. The Rossi-Focardi efforts have re-invigorated the field's attention to the nickel-hydrogen system, with promising new devices from several groups.

Rossi wrote affectionately about his friend and collaborator: "We all have lost one of the greatest scientists in the field of LENR. For me he has been a tremendous ally, he helped our work enormously and the safety certifications that we are obtaining are the fruit of his consulting during the last seven years. For me he has been also a teacher for Physics and Mathematics, anytime I needed his help in these matters to better understand the theory behind the effect of the E-Cat. He has always worked with us with total, absolute and disinterested attitude, thinking only in the interest of the science behind LENR."

Collis said, "Sergio Focardi was a mentor for me. It was he who proposed me as a member of the Institute of Physics. He explained to me in whispers, during an examination he was invigilating, the secrets of nuclear isospin. He showed Xing Zhong Li and myself the cathedral in Bologna, pointing out the small hole in the ceiling which the sun's rays would penetrate and cast an image on the floor. The Church in those days wanted to determine the dates for Easter and the size and position of the image showed that the Earth travelled in an elliptical orbit. Sergio Focardi was not just a man of physics, but also of culture and history."

Celani has enjoyed working more closely with Focardi



Sergio Focardi takes a radiation measurement during an early test of the E-Cat. *(Photo courtesy of Giuseppe Levi.)*

again as a result of the Rossi developments. In 2011 and 2012, they spent time together to do several interviews with Governemete Television (RAI) about LENR and the E-Cat.

Giuseppe Levi, friend and colleague of Focardi at the University of Bologna, wrote: "Prof. Sergio Focardi was a real master for me. I think that I have really learned how to be an experimental physicist from his words and his example of being an honest, open, extremely intelligent and acute person. He was also full of humor and is for me a role model, giving me the courage to go on in my life always with a smile."

Sergio Focardi's contribution to the LENR field will be memorialized through the ongoing research and development of Rossi's E-Cat, Defkalion's Hyperion and other related devices.