ICCF15 in Rome, Italy

Marianne Macy

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The Fifteenth International Conference on Condensed Matter Nuclear Science (ICCF15) took place in Italy on October 5-9, 2009 at Angelicum University. Angelicum resides in the heart of Rome just behind Trajan's Markets, at the opposite end to the Colosseum and between the Roman Forums—the central area around which the ancient Roman civilization developed—and the Quirinale Palace, the official residence of the President of the Italian Republic.

Angelicum University is located in a monastery built by Giacomo Della Porta, the architect and sculptor who completed Michelangelo's dome at St. Peter's Basilica, with additional work done by Nicola Torriani and Vincenzo della Greca. The monastery church Santi Domenico e Sisto, next to the entrance of Angelicum, contains a high altar which is a work by Gian Lorenzo Bernini, the seventeenth century leading sculptor of his age. Despite taking place in a location described as "distractingly beautiful" by LENR-CANR.org co-founder Jed Rothwell, the twentieth anniversary conference offered a lively program, and hosted 154 participants from all over the world, including Italy, England, France, Spain, Israel, India, China, Japan, Ireland, Russia, Germany, Poland, Canada, the U.S., and Australia.

The exterior of Angelicum University.

This year has been the twentieth anniversary year of what historically has been known as "cold fusion." ICCF15 chairman Vittorio Violante, in charge of the project "Excess of Power in Deuterium-Charged Metals" supported by the Italian Ministry for Economic Development, is a former Division Head in Special Technologies for Nuclear Fusion at the ENEA Frascati National Labs. Violante has been involved in replicating work done at SRI and Energetics Technologies in Israel.

"The focus of ICCF15 is Communication on Progress," Violante explained via email in the summer of 2009. He arranged for opening addresses from high level representatives of the Italian Chemical Society, Italian Physical Society, and the European Union. Their acceptance of his invitation was a strong indicator of recognition of progress in the field. Vittorio planned that his own opening talk would be a retrospective of the work done by ENEA on material science. "Some of the participants of the conference do not know the background so we will supply it. We are using a classical science approach. We want to give evidence that the Fleischmann-Pons effect is real to the external community. We will have presentations that show that different institutions with different equipment had the same results. The transference of results gives evidence that the effect is real."

2009: SCIENTISTS CONTINUE, RESULTS AND RESPECT

This has been a noteworthy year for recognition of the successful results of continued LENR research. At the March 2009 meeting of the American Chemical Society, held in Salt Lake City, Utah on the twentieth anniversary of the announcement by Fleischmann and Pons, experimental results reported by the U.S. Navy's Space and Naval Warfare Systems Center (SPAWAR) in San Diego, California, received extensive press coverage and attention.

SPAWAR analytical chemist Pamela Mosier-Boss described the research results as being very significant. "To our knowledge, this is the first scientific report of the production of highly energetic neutrons from an LENR device," their report stated.

In the new study, Mosier-Boss and colleagues Stanislaw Szpak, Frank Gordon, and Larry Forsley, worked together on a process called co-deposition, in which an electrode composed of nickel or gold wire is inserted into a solution of palladium chloride mixed with deuterium or "heavy water." Electric current is passed through the solution. The scientists then used a special plastic, CR-39, to capture and track any high-energy particles that may have been emitted during reactions, including any neutrons emitted during the fusion of deuterium atoms. The resultant track marks left on the CR-39 detector were described by the researchers as being made by subatomic particles released when neutrons smashed into the plastic film of the CR-39, possibly from the fusing of deuterium nuclei.

"People have always asked 'Where's the neutrons?'" Mosier-Boss said. "We now have evidence that there are neutrons present in these LENR reactions." The SPAWAR results, and the subsequent news coverage generated considerable worldwide attention and interest in continued research. This talk at the ACS meeting described work published in the January 2009 issue of the peer-reviewed journal *Naturwissenschaften*. Coincidentally, the published observation of DT neutrons from co-deposition LENR occurred 70 years after the first paper on nuclear fission was published by Hahn and Strassmann in *Naturwissenschaften* in January 1939.

In addition to numerous online and print news stories about the SPAWAR work, the Discovery Science channel show "Brink" produced a seven-minute segment in response to the ACS announcement (see *IE* #85).

In April, the CBS news program "60 Minutes"—one of the longest running and most respected broadcast news outlets—aired a segment entitled, "Cold Fusion Is Hot Again," in which they recapped the history of what had seemed to be a discredited science and now, twenty years later, appeared to have a different storyline (see *IE* #85). The program focused on the results of leading researchers in cold fusion, among them Energetic Technologies in Israel, who reported some of the largest power gains in the research of the field. These results had been replicated by SRI International and ENEA, where some of the most reliable work with palladium has been done.


Martin Fleischmann

A dissenting voice was raised in the piece by physicist Richard Garwin, whose own earlier fusion work had involved the making of the hydrogen bomb, which he described as "unfortunately a very successful experiment." He attributed the cold fusion results of McKubre as being due to mistakes—"probably he measures the input power wrong." Garwin's claim was challenged by McKubre, who countered that a very large number of people in labs throughout the world had been making these measurements for twenty years and that "current, voltage, temperature and resistance are some of the simplest measurements that a physicist or a physical scientist will measure."

Robert Duncan is a physicist, Vice-Chancellor of Research from the University of Missouri, and an expert in measuring energy. Duncan accompanied the CBS reporters to Energetic Technologies in Israel, where some of the largest power gains in cold fusion had been recorded. Despite his initial skepticism, Duncan's scrutiny of the experiments and data led him finally to tell "60 Minutes" that the "excess heat. . .is quite real. . .I never thought I'd say that." Duncan said he was one of the 90% of scientists who previously had believed cold fusion was crackpot science. Now he urged people to read the published results, talk to the scientists, and "never let anyone else do your thinking for you." CBS quoted an internal memo from the Pentagon's Advanced Research Agency (DARPA) which stated there was "no doubt that anomalous excess heat is produced in these experiments."

The "60 Minutes" story concluded with a trip to England to speak to one more scientist, Martin Fleischmann, who concluded by saying, "The potential is exciting."

Fleischmann, and his collaborator Stanley Pons, recognized that potential from the start in 1989. The ICCF International Advisory Committee (IAC) wanted, during the occasion of the twentieth anniversary year, to recognize both men for their contribution to the field. It was decided early on that the International Society for Condensed Matter Nuclear Science (ISCMNS) Contribution Award, the Minoru Toyoda Gold Medal, would be presented to recognize an outstanding contribution to the promotion and progress of the condensed matter nuclear science community. Michael McKubre of the IAC clarified some history regarding the award and recognition: "Martin and Stan were early proponents and selectors of the Truffle Prize that became the Preparata Medal. Since many of these had been given, it seemed untimely to propose a Preparata Medal for the field's founders, no matter how historically deserved. The medals committee of the ISCMNS under the able stewardship of Akito Takahashi and Bill Collis created the Toyoda Medal to correct this predicament and provide a potential future means to honor contributors to the field at the highest level, not necessarily restricted to technical."

Stanley Pons was approached to come to ICCF15, but he expressed no interest in attending. It was clear that in 2009, Stan Pons was not going to come to Rome.

Fleischmann, meanwhile, was trying to get there.

FLEISCHMANN'S COURAGEOUS MEDICAL EXPERIMENT

Martin Fleischmann knows better than anyone that science is something which involves experiments, taking data, selecting a course of action, and proceeding through the unknown based on information one decides to take a chance on. Irv Dardik and his LifeWaves protocol was just such a scientific experiment. The founding chairman of the United States Olympic Committee Sports Medicine Council and vascular surgeon Dardik devised his LifeWaves protocol when his friend Jack Kelly—brother of Grace Kelly, Olympic bronze medalist in single scull (rowing) and president of the U.S. Olympic Committee—died unexpectedly at the age of 57 in 1985, while running after his regular morning row.

It shouldn't have happened. Kelly was in top shape, a marathon runner and rower. Dardik worked at figuring out what killed his friend. He set out to create a health program involving a cyclic exercise program of pairings of exercise and recovery. He developed and tested the same principle that would be applied to what he called SuperWaves, also used in pulsing current and creating a reaction in LENR experiments—successfully, as it turned out. The story of Dardik's search is detailed in a book by science writer Roger Lewin, *Making Waves: Irv Dardik and His SuperWave Principle*. Martin Fleischmann considered that. Just as he considered the fact that Dardik had lost his medical license, as reported in Roger Lewin's book, which Martin and Sheila Fleischmann both read. Lewin's book recaps (Chapter 8) the results of the legal action initiated by a former client of Dardik's, Ellen Burstein, and brought before the State of New

York Department of Health Administrative Review Board:

> On 24 March (1995), the board issued its findings, stating that Dardik was guilty of fraud, of exercising undue influence over his clients, and of guaranteeing a cure. It noted that the contract that had been drawn up, which stated that a cure was not guaranteed, contradicted what Burstein alleges (and Dardik denied under oath) he told her face to her face. Dardik was found not guilty of revealing personal information, and not guilty of being morally unfit to practice medicine. The board voted unanimously to revoke Dardik's license to practice medicine in the State of New York.
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> . . .The irony is that this episode need not have happened at all. When Dardik and Godfrey started doing the program in earnest, and charging clients, they were advised to set up a Professional Association, and to take out malpractice insurance for protection in the event of getting sued. To do this, Dardik maintained his medical license, and so in effect he was operating as a physician, even though what he was doing was nothing like a traditional physician does. "The second mistake," explains Dardik, "is that some people on tight budgets wanted to get reimbursed for the equipment they had to buy, so I helped out by writing a prescription for them." Again, he was acting as a physician. These facts had been duly noted in the boards findings. "Had I said from the beginning, 'I don't need my license any longer, because I'm not doing surgery any more,' Ellen would not have been able to bring an action against me to the medical board," explains Dardik. Indeed, toward the end of the hearings, the chairperson said to Dardik, "I think if you had confined yourself to having a fitness program, you wouldn't be here today."

Martin Fleischmann considered Dardik's published and peer-reviewed studies, one on Parkinson's disease, the results of which were published in the *International Journal of Molecular Medicine* (see www.lifewaves.com/OurPubs.html). He considered studies Dardik had done with Harvard, Columbia University, and the University of Missouri at Kansas City. Fleischmann learned that the clients who worked with Dardik would have to maintain the discipline of a program of exercise and not stop their cycles. The Dardik Institute stated clearly to Fleischmann that he was not being offered a "cure." But people who worked with Dardik showed improvement—improvement that often led to them going from incapacitation to function. The Dardik Institute had worked with clients with multiple sclerosis, Parkinson's, heart disease, bipolar illness, cancer, and health problems their doctors could not help. Successful case histories included presidents of a major automotive company and the largest privately owned fashion company in the U.S., and many others, including peers of Martin Fleischmann who had been on the protocol for years and saw significant improvements in their health—people who were hard nosed about data and disinterested in dying.

It took a year for Martin Fleischmann to make the decision to come to the U.S. to work with Irv Dardik. When arrangements were made for the trip, Fleischmann had classic symptoms of Parkinson's disease and could not fly. He and his wife Sheila boarded the Queen Mary in June 2009 to sail to New York. By the time he flew back to England, it was a less than a week until ICCF15 began. In the three months of his stay, he had worked with Irv Dardik and his team faithfully. "I never saw Martin say, 'I can't do it, I'm going back to bed,'" Dardik related.

Alison Godfrey, Irving Dardik and David Nagel

Fleischmann's daughter Vanessa, who had "not expected much," was struck by the change when she saw her father this fall. "It's as if we are going back in time some years," she said. Fleischmann committed to having local trainers and supervisors continue his program from his home in England, working with the Dardik Institute via a computer setup. Martin Fleischmann, exposed to a flu before he left the U.S., was tired when he returned to England on September 29. He went to bed and rested for a few days. But at the end of the week, he got on a plane again, this time to Rome.

ICCF15 STARTS, ROMA

In the course of the week-long presentations of research and experimental results, material science discussions, new diagnostic tools presentations, theoretical sessions, and topical round table discussions, one of the original Italian researchers, Tulio Bressani of INFN in Torino, related that cold fusion generated the greatest area of interest among his students. But, he was hindered in encouraging them to work in the field due to the lack of job prospects, a still troubling problem internationally. Twenty years later, there are replicated and published results from all over the world. The extraordinary media coverage about cold fusion over the past months has resulted in ripples spreading further out. As evidence of the turning of the tide in mainstream media, there were several teams who showed up in Rome focused on interviewing people at the conference for documentary

Giovanna and Vittorio Violante

David Nagel, Martin Fleischmann and Michael McKubre

films (see later section).

On the first morning of the session, scientists greeted old friends and shook hands with new ones, eager to get going. Thus it was that ICCF15 commenced.

Conference chair Vittorio Violante welcomed the crowd, "It is a great honor to chair this conference. . .ICCF15 has a particular meaning since it is occurring on the twentieth anniversary of the announcement. . .It is my feeling that the specific feeling of the conference will certainly be supported by the content of the lectures that we are going to follow."

The lecture hall had carved wooden seats that semicircled to focus on the stage. It was simple and unadorned like a spare church. Outside the bright open air hallways, windows revealed the city of Rome. There were courtyards with palm trees and flower gardens and friars and nuns in habits among the students making their way to the espresso café. Inside the doors of the auditorium, Michael McKubre announced, "It is my extreme pleasure to invite Professor Fleischmann to speak a few words to you this morning."

A few months earlier it would not have been possible for Martin Fleischmann to walk up to the podium and begin. But his voice was deep and steady:

> Welcome, ladies and gentlemen and friends. You will see many faces who you recognize in the audience. You will also see some faces you don't recognize. May I encourage you to ask who these people are and then look them up in the abstracts and see how distinguished they may be. I want to thank the organizing committee for inviting me to open this conference. I think in a way. . .
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> The field has moved on greatly from the point at which we began in 1989. To present an aspect of this work would be quite impossible. The increasing quality of work is evident. I think that if you look through these papers you will see the steady improvement of the quality of the work.
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> We have to be aware of the fact that science moves forward not only by the investigation of new systems but also by the reinvestigation of old systems. Many friends have called my approach to the work Socratic. I shudder to disagree with this assessment. I think that we have to be aware of the fact that we have to ask searching questions in order to really know what may be going on in our systems. I think we have reached a point where it is becoming clear that it is possible to ask these searching questions and that we will be able to find some answers to the questions which we have asked.
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> I think those of us who are concerned with the mechanics of the system are aware of the fact that we have to ask very detailed questions to outline exactly what went wrong. The next few years will see the answers to these questions.
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> We have to ask in particular whether the electromagnetic forces which are certainly present in condensed matter are key to the development of the nuclear processes or whether they are just an adjunct of them. And we have to ask if the electromagnetic forces which are part of the condensed matter nuclear system are key to the understanding of the processes which we see.
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> I think the next few years will be very exciting, and I wish you all the greatest success in your research.

There was thunderous applause as he left the podium. Martin Fleischmann sat down to listen to the next speakers.

The next speaker was Renzo Tomellini, the European Commission Directorate General for Research. He described how the EU worked with researchers, concluding with a statement about his office's willingness to support them. He explained that he had never turned down a proposal for research on cold fusion that came to him at the EU, adding humorously, "I have never received any proposals for cold fusion at the EU!"

Vittorio Violante had invited members of the Italian Physical Society and Italian Chemical Societies to open the conference. Their presence at the conference was indicative that this research was considered serious by the scientific establishment of Italy, and their remarks were made in that spirit.

Luigi Campanella is President of the Italian Chemical Society. He noted that the society had 5,000 members. "I will speak about how our wish can be our hope," he began. "Our work is stressed by the so-called 3e crisis—environment,

Photo by Marianne Macy

Renzo Tomellini, Vittorio Violante and Robert Duncan

energy, economy. There are different interpretations of the cost of energy and its cost to the environment. . .The ecological footprint for Italian citizens is eight times what it should be." He showed slides about energy consumption in Italy, with proposed actions to save energy. He indicated that the Italian Chemical Society is dedicated to such problems, concluding with a hope that this conference would make a contribution.

Next was E. De Sanctis, Vice President of the Italian Physical Society, who explained that ideally, the Italian Physical Society represents the thinking of Prince Medici, who founded the Academi de Cimento in 1657, from which the journal *Il Nuovo Cimento* took its name. He read from a 1947 address by former society president G. Polvani: "*Cimento*, in its pregnant meaning, is at the same time the trial, the test, the effort, the risk, the peril, the experiment, the comparison, the thirst for knowledge, the extent to which the metal refines in the crucible. The crucible then is the mind, and the two words, provendo and reprovendo, of the enterprise, mirroring each other, show the route to obtain, by trying and trying again, the beauteous truth. It is the essence of Galilei's method."

Continuing with the idea, De Sanctis explained that the beauteous truth was referenced in "The Divine Comedy," the central epic poem of Italian literature, by Dante Alighieri.

"I spend time on the formation of the Italian Physical Society because of the relevance to this group," he said. "You are climbing the mountain." De Sanctis proceeded with a series of slides depicting the history of cold fusion, from the 1989 announcement by Fleischmann and Pons, through the first DOE review in November 1989 to the more optimistic 2004 review with its identification of two areas—properties of deuterated metals and search for fusion events in deuterated metals—where additional research could address specific issues, and the invitation for funding agencies to entertain related proposals.

De Sanctis acknowledged the processes illustrating that "Cold Fusion (is) Back on the Menu." This he attributed to the presence of a session on cold fusion at the American Physical Society meeting in 2007. He also credited the conferences themselves with advancing the field, concluding with a wish for success in this conference and that it would pave the way for future sound developments.

Physicist Robert Duncan, Vice-Chancellor of Research from the University of Missouri, was the outside expert chosen by the American news program "60 Minutes." He accepted the invitation of the ICCF15 organizing committee to speak at the conference. He was careful when asked throughout the week to distinguish that his interest was that of a methodological observer, and made a point of talking with researchers from all over the world. The title of his talk, "An Outsider's View of the Fleischmann-Pons Effect," emphasized his role. Duncan explained: "A little over a year ago when '60 Minutes' contacted me about looking into cold fusion, I did not realize that it was such a vivacious area for scientific inquiry as I do now. . .So what I would like to do is give you a feel for how I gained this appreciation, which may prove to be a roadmap for how we convince our physics colleagues of the importance of the research."

Duncan traced the antecedents of cold fusion, starting with a report of a possible nuclear fusion in palladium loaded with heavy hydrogen in Berlin, Germany in 1926 by Swedish professors Paneth and Peters, which was later retracted, although there was patent activity in 1927. There was detection of confirmed nuclear fusion in liquid heavy hydrogen in -422F and (-252C) in Russia, Berkley and other places from 1954 to 1959. He said, "The fusion is catalyzed by naturally occurring muons." Then in 1989 there was Fleischmann and Pons' announcement. He discussed different types of hydrogen fusion reactions and whether palladium could somehow catalyze these reactions in the solid state, which is controversial in the physics community.

Duncan declared that one of the most exciting papers he has read was on muon catalyzed fusion, and that its relationship to the field was something that should be considered: "It's clearly cold fusion mediated by muons, but there's no energy technology in that, at least for today because muons are so expensive to create artificially, and the natural luminosity is far too low. But I mention it because as physicists we know at least one physical mechanism that mediates cold fusion quite clearly. I'm not saying with any definitiveness that this is what's going on in the Fleischmann-Pons experiments, but I'm saying let's keep anything of physical intuition on the table to support this."

Duncan then spoke about "Cold Fusion in the Age of Mass Media." He talked about the excitement resultant from the 1989 announcement, from "maybe this will solve the world's energy problems" to the fact that, "There is a huge gap between a scientific discovery and an engineering solution in something this major as an energy process. There was an expectation set and then when that was not met, there was a negative reaction by the physics community, especially in the U.S. As a result, real science with possible engineering consequences that could be profound, suddenly became a pariah science. This was, I think, a very big detriment to this area of inquiry for the past twenty years."

Duncan discussed increased evidence in the form of two hundred reports from over twenty research groups that had supported the Fleischmann-Pons results. He said he had researched and then explored excess heat results from labs that had ensued since 1989, noting, "I'm not bashful. I've discussed this with Nate Lewis, with Chancellor Wright of Washington University and many other physicists who are understandably very skeptical of this. The first question that is always asked is, 'What's different now than when they tried to replicate results in 1989 or 1990?' What is different

now is that due to the work of Michael McKubre at SRI we know that the loading (D/Pd) must exceed 0.88 for excess heat. It's hard to achieve using electrochemical techniques. Only people who are extremely skilled in those experiments have been able to achieve such high loadings." Duncan detailed the other experimental techniques that had resulted in success—ion bombardment and gas loading of nanoparticles, co-deposition, and other experimental permutations.

Duncan recapped the road he'd traced on the "60 Minutes" exploration, going to Energetics Technologies lab in Israel. He recapped the labs, isoperobolic calorimeter used in the experiments, and particular distinctions he'd asked about. He related that in one instance he'd calculated they were doing an estimate of their excess heat results that was too low which he described as "an interesting point." He pointed out what the experimental stumbling blocks and foibles could have been and what he'd looked into. He had taken Richard Garwin's criticism voiced on the program, which he had discussed with Garwin, of an underestimated input power, and done the observations and calculations to check into that. He asked, "Could there be energy they were not taking into account?" He examined the experimental methodologies and analyzed the data. "I can't stress enough to you what a revelation it was to find the excess heat effect was real. . .I had been sure it would be due to some experimental error as many people had thought in the past," he said. "It's not. It's real."

Duncan's talk wound down by asking, "So what is going on?" His answer? "We don't know. It will take a lot of well controlled experiments to figure this out. The excess heat effect appears to be real. That is enough to motivate serious study." And, Duncan asked the key question: junk science or empirical data? "Persistent observations, such as excess heat in Pd-D and superconductivity above room temperature, should be treated as empirical evidence that our understanding of physics remains incomplete, as it probably always will be. It is simply too convenient and counterproductive to dismiss these observations as 'junk science.' The scientific method is the only thing we've got, and fortunately it is the only thing we need! Simply apply the scientific method without prejudice, and go where the data lead you," he urged.

As Duncan left the podium, session chair Jirota Kasagi from Tohoku University in Japan observed, "The outside view is a good view!"

The Minoru Toyoda Gold Medal

MARTIN FLEISCHMANN HONORED

The scene was the Castel Sant' Angelo, a romantic cylindrical building in Rome overlooking the Tiber River with the city sweeping below under a silvery near full moon. After the first day of seminars, a feast of Italian food and wines now led to the presentation of the ISCMNS Toyoda Gold Medal award by ISCMNS founder and director Bill Collis and Akito Takahashi, former president of ISCMNS and the Japanese Cold Fusion Society.

It has been said that "all roads lead to Rome." Fleischmann and Pons are the discoverers and originators of cold fusion, or the Fleischmann-Pons effect, as it is now called. History can not change that. The conference and committee organizers, having made their outreach, respectfully accepted that Pons did not wish to attend. So it was that Fleischmann alone was awarded and accepted the gold medal.

Bill Collis offered, "I think the Awards Committee always felt that Martin and Stan deserved something more than a Truffle (the award given in the early years) or a silver medal. The Minoru Toyoda Gold Medal in fact is awarded for outstanding contributions (not necessarily scientific) to the promotion and progress of the CMNS community. In this case we recognize Martin's moral courage in persisting in his research despite the opposition."

Akito Takahashi, a physicist from Osaka University, related the background of the 18 carat gold medal: "The ISCMNS Contribution Award, the Minoru Toyoda Gold Medal, is named as a memorial to the late Minoru Toyoda, who made a great contribution for promoting CMNS research activity."


Martin Fleischmann admires the medal presented to him.


Akito Takahashi shows the medal before its presentation.

Melvin Miles

George Miley

Photo by Marianne Macy

Xing Zhong Li

Takahashi profiled Minoru Toyoda (Toyoda is the family name of the founders of Toyota Motor Group Companies). Toyoda was president of Aishinseiki Co., one of the Toyota Group companies. He was founder of institutions such as IMRA-Japan, which started cold fusion research soon after the Fleischmann-Pons announcement in 1989. IMRA-Europe, the laboratory where Fleischmann and Pons, Dr. E. Yamaguchi, and others worked on CMNS/CF studies, was also founded by Toyoda. From 1993 to 1998, IMRA-Japan provided a laboratory for the New Hydrogen Energy Project funded by the Japanese Government (MITI/NEDO).

Bill Collis managed to frame the history of the ISCMNS award in a broad historical context. "This year, we celebrate twenty years of cold fusion history. And it's so appropriate to celebrate the anniversary in this wonderful city of Rome. Legend has it that Roma was founded 2,762 years ago by Romulus and Remus. The city wasn't built in a day. At that time, not all had the perseverance and foresight to realize they were constructing the capital of the world's longest surviving empire. Indeed, Remus paid for his impatience with his life. Cold fusion, too, will likewise tease and test our patience."

Collis continued, "History is also much more recent and relevant. Not many people realize that in the very next street to the Angelicum, in Via Panisperna, Enrico Fermi and his 'boys' discovered slow neutrons and developed the theory of beta decay in the years 1934-38. Fermi got the Nobel Prize for his efforts."

Charlotte Fleischmann, Martin's daughter, addressed the crowd to express her own thanks: "I just would not have believed that it would be possible for him to be here tonight. Until last Friday, I had not seen my father since mid-June when he and my mother left to go to America at the very, very kind invitation of Irv and Alison and their team. The transformation in him, when I saw him on Friday, was absolutely amazing. It was so brilliant. It was like getting my Dad back. I'm almost at loss for words, but not quite," she said, getting a hearty laugh. "When they arranged for Mom and Dad to go over to America, as a family we didn't really have any expectations at all. We hoped it would help. We didn't know it necessarily would. But what actually happened is that I believe it has given Dad a whole new lease on life. I am sure he feels that way too. So hooray for the program and America. I want to say that being here tonight seems like a totally appropriate occasion for my father to receive this award because of the amazing research that has been done by the Italians and the fantastic positive contribution that they have made to this field and also to the Japanese, who have been a fantastic, stalwart backup of the whole thing. So onwards and upwards. . ."

Collis and Takahashi led the applause as Amelia Preparata presented Martin Fleischmann the Toyoda Gold Medal. Fleischmann said, "Well, ladies and gentlemen, friends, associates. . .you know each other very well, and if you don't, you should see to it this time that you form a close association so that you are able to pursue this topic to its conclusion. If not conclusion, then to the beginning of the end. I think that when we started this work we had no real expectation that we would succeed in proving anything. That is why our measurements in the early days were incomplete. However, as metals developed, we became convinced we were on to a new phenomenon. Whether it is entirely new or not remains to be seen. I think it is a new phenomenon and as we develop the subject it will become clear what the boundary conditions of this new phenomenon are. It's highly appropriate this metal should be presented in Italy because of the outstanding work which has been contributed by the Italians to the understanding of the phenomenon. . ."

Researchers from all over the world had upbeat comments on the occasion. Francesco Celani, from the Instituto Nazionale di Fisica Nucleare (Frascati, Rome) stated, "We are lucky because we meet Martin again and he is in good shape. I think it will be more interesting because he is here."

Ed Storms, Los Alamos National Laboratory (Retired), declared, "It's absolutely appropriate that he gets the rewards and adulation of the people in the field that he helped start. I'm glad that he is well enough to attend. He started the field, and so at this point everyone's job here is dependant upon what he discovered."

Ivan Chernov, physicist from Tomsk Polytechnic University (Tomsk, Russia), said that Fleischmann made, at the conference session, "a very interesting short talk about what is important to understand about this phenomenon. He especially emphasized that the electromagnetic field is important. I agree with him because we now have developed this idea too. We are observing nuclear reactions stimulated by electrons with metals that appear to have a strong oscilla-

Robert Hagelstein

tion of electron density and a strong electric field which allows it to accelerate atoms of deuterium in these materials."

Martin Fleischmann, his daughter Charlotte, and friends paused on the walkway outside the Castel Sant' Angelo after the celebration, looking at the moon, the Vatican, the ancient and modern city spread in front of them. Charlotte was in Rome for the first time and her whole trip would last less than 24 hours. She declared that despite her high heels, she would walk across the city and meet them back in the hotel. But now, after the long day which had begun with the opening of the fifteenth cold fusion conference and ended with the gold medal in the castle, Martin Fleischmann would rest.

FILMMAKERS AT ICCF15

Perhaps in part because 2009 was a noteworthy year for the field in terms of media coverage, three separate U.S. documentary film teams came all the way to Rome to shoot interviews at ICCF15. Filming was not permitted by any crew on site at Angelicum University, so off-site arrangements had to be made for interviews.

One documentary crew prefers, at this time, to remain unnamed and keep a low profile because they are in the developmental stages of a project. They are a documentary team whose work has appeared on public television, with a prior documentary on hot fusion research at a major institution. The crew met with a number of scientists for interviews.

Another filmmaker is a veritable "Son of Cold Fusion." Robert Hagelstein, son of MIT cold fusion theorist Peter Hagelstein, was a toddler when cold fusion burst onto the scene in 1989 (he was born in 1987). His physical similarity to his father, especially when they smile, is so striking that introductions to scientists in the field were almost not necessary.

Robert may resemble his father in appearance, but his academic pursuits have been much different than Peter's. Robert is studying anthropology and filmmaking at the University of Massachusetts-Amherst. Unlike his father, Robert was never interested in math or science, but instead focused on the social sciences. He speaks of the work on this film as a way of better understanding something that is part of his earliest memories and which is significant to his father's history. He notes that when he was younger, he listened to his father's explanations about cold fusion work but the concepts "would never stick" in his young mind. He was always proud of the work his father did, noting, "I had a particularly smart science teacher in eighth grade who knew what cold fusion was and would occasionally ask me about it. I was very proud to bring in my dad after school one day and have them talk about it. Those interactions always made me proud." Now that he is older, Robert brings a new sensibility to the topic and better understands the concepts explained to him by researchers at ICCF15.

Robert's media sensibilities fit with his generation. While he eventually hopes to show his documentary at festivals and perhaps distribute it commercially, the first version (which will be aimed at a general viewing audience) will be available online. "I think the internet is just absolutely amazing, and I have no earthly idea how society functioned before it. I only have people's word that it did. . .somehow." he said. "The internet is the great equalizer. Anyone can put their work on the internet for everyone to consume."

The goal is to create a website dedicated to the documentary, where visitors can not only watch the film but access supplemental material, possibly including excerpted interviews and footage. Robert envisions it as "a portal where people can get introduced to the subject, then research it further."

Robert likens the filmmaking process to the process of a scientist: "I heard something somewhere that I think sums up the filmmaking process so far. When a scientist is asked how something they're researching works, and they say 'I don't know,' it's not that they have no ideas. It's that they have way too many. When I started thinking about how to even make this movie, I was overwhelmed with ideas. I still am, but I'm a lot more focused now. This movie is going to be something that is accessible to everyone, but especially young people. I want my generation to know what's been happening in the field, where it is now, and where it's going."

Robert is joined in the project by David Skillicorn of Sunrise Media, who will serve as cinematographer and finish editor. David brings 25 years experience to the table and has worked as a director, cinematographer, producer, and editor for most of the major cable and broadcast networks; he has also won numerous awards for his work, including multiple Emmy Awards and nominations, the UPI Journalism Award, a Gold Medal from the New York Film and Television Festival and two Iris Awards. Peter Hagelstein will serve as a science consultant and has already proved useful in acting as liaison between the small crew and scientists.

Robert's exposure to the cold fusion community at ICCF15 was more than positive as he and David exhaustively did as many interviews as they could in Rome. (They will continue with interviews back in the U.S., with the hopes of finalizing the film in mid-2010.)

Initially nervous, Robert found himself struck by what he called "the kindness and availability of the people there. It was exciting to talk to them." He says that after meeting many of the scientists in the field, he now has "a better idea on a story level what are the major areas of discussion and major themes going on, who are the scientists, what is their motivation and what have they gone through." Robert discovered that he might get very divergent answers when asking the same basic set of questions to different researchers.

"One person thought it was a new field of physics and a revolution in scientific thinking. The other extreme was the caution of Robert Duncan, who said it was definitely an effect, something to be studied, but it was too early to say what the nature of it was."

Robert's anthropology studies at UMass-Amherst have been revisited. He notes that from an anthropological standpoint he is "picking up the culture of this community. It seems to me the cold fusion community has a culture of their own which is very exciting. It is reciprocity-based, where people share ideas, experiments and resources. This is not how science works at all! Scientists rarely seem to help each other the way these people are doing. It's a close-knit community. . .Even after all the mud-slinging, there is a youthful exuberance for researching this discovery. It's amazing what this group of scientists has done with limited resources in the last twenty years."

The third crew at ICCF15 was Kiira Benzing and Dylan Tuccillo of Double Eye Productions, LLC. Double Eye Productions is creating a documentary about Dr. Irving Dardik and his SuperWave principle.

Benzing provided background on their interest in the Dardik work: "His theory. . .is currently being applied to cold fusion, terminal illness, and athletic training. Our film centers on Dardik's life and extends around the world to the places his SuperWave principle is being applied."

Double Eye Productions interviewed numerous scientists on Dardik's ideas and how they relate to cold fusion experiments around the world. Benzing noted, "Some scientists confessed that they're uncertain of what it is about Dardik's SuperWave principle that is actually working with the experiments, and that his principle is more of a philosophy than a scientific theory; but all in all everyone we spoke with was excited about the cold fusion results worldwide and how the SuperWave Principle was enhancing their successful results."

Double Eye Productions hopes to release the film by 2012. See www.doubleeyeproductions.com for more information.

TOURING ROME, A "DISTRACTINGLY BEAUTIFUL" CITY

The conference planners provided a rewarding series of tours and excursions which many of the companions of researchers and conference attendees took advantage of. A first day tour of "Classic Roma" involved a pleasant stroll through the historic center, taking in the Trevi Fountain, the column of Marcus Aurelius, Palazzo di Montecitorio (designed by Bernini), the Pantheon, Palazzo Madama (seat of the Italian Senate), and Navona Square, as well as the Basilica di San Pietro to see Michelangelo's "La Pieta."

Photo courtesy of David Fabrice

Michael McKubre and David Fabrice at St. Peter's Basilica.

Tuesday found visitors going to the Galleria Borghese, to the mansion commissioned by Cardinal Scipion Borghese, built between 1613 and 1614. It houses the Cardinal Borghese's art collection, one of the finest collections of masterpieces in Europe. They also attended a concert by Ensemble Nuovarmonia at Basilica di S. Bartolomeo alla Isola, where Conductor Enrico Blatta conducted selections from Mozart. Also visited that day were the Villa D'Este e Villa Adriana, in Rivolo, masterpiece of Italian gardening, a World Heritage site replete with fountains, nymphs, grottos, and music.

On Thursday the group toured the Musei Capitolini e Terrazza Caffarelli, created when Pope Sixtus IV donated a group of bronze statues to the city of Rome.

The last night was the conference dinner at Pallazzo Brancaccio, the last Roman Patrician Palace built in 1880. Mary Elisabeth Field, American wife of Salvatore Brancaccio, commissioned architect Gaetano Koch to construct the rococo palace in a park between Roman ruins. The large banquet halls were where the ICCF15 participants celebrated their last night of the conference, eating a magnificent feast that started with hors d'oeuvres of all sorts, Italian cheese, sausages, suckling pig, full bar with champagne. A multicourse meal followed which included artichoke lasagna and meat and fish courses, with dancing afterward.

Perhaps the most noteworthy tour in Rome for the cold fusion community was the audience with Pope Benedict XVI. For this, SRI's Mike McKubre was selected to represent the conference members; this is his personal account of the special day:

> I was honored and proud to represent the ICCF community and receive a blessing from His Holiness on behalf of us all. Maria Polidoro had prepared me—if such is possible—by putting into my hands a scroll (I presume the conference poster) and the ICCF15 activities booklet. She told me, "These you give to Him." At least, I heard *Him*, not him. This was my first clue that something very special might be happening. With these few words I was ushered to the left, right up to St. Peter's Basilica, and seated on a wooden chair just at the steps of San Pietro! It must have been a long time in the hot sun, waiting for the Pope to arrive in his "Pope Mobile," listening to sermons/speeches in several languages and watching the Pope bless large audience groups at a distance in the enormous crowd (including blessing our group). From my vantage point perhaps 30 meters behind and to the right of His Holiness, I had an unobstructed view and I took many photographs as time passed swiftly.
>
> At the end of the General Audience the Pope made a slow procession along the 50 or so of us who had been honored with a "Private" Audience. He spoke with each person for a minute or so, received their gifts, the handshake or kiss on the ring finger, and

gave each a blessing in turn. I felt a little underdressed and under-prepared, but I was among the last, which gave me time to prepare what I wanted to say. It was an interesting feeling to be "almost alone" in such a potent and spiritual place, with my back (now) to the gates of St. Peter's. As His Holiness approached, rather than feeling more tension the world seemed to become more peaceful.

Finally it was my turn and it was Him and me. I introduced myself, looked into his eyes, gave him the gifts kindly supplied by Maria. I shook his hand and said slowly and clearly, "Good day Your Holiness. I am Michael McKubre, Director of Energy Research at Stanford Research Institute in California. I am here in Rome to attend a conference on cold fusion—fusione fredda—and we could surely use your blessing." He looked at me with a little smile and query. I am not certain he completely understood—I am sure he was not accustomed to having the request put in quite that way. I think he did understand and he raised his right hand and said "I bless you all." It was a moving experience and one that I will not forget.

ICCF15 ENDS, 1CCF16 BEGINS

ICCF15 Chair Vittorio Violante made sure that the conference ended with a lovely ceremony in which every single person involved from his extensive staff—who coordinated hotels, transportation, social events, sessions, and other logistics, as well as made sure there were people to translate Italian, security, timing, coffee—came up to the stage and were thanked and applauded.

ICCF16 was born, as usual, at the end of ICCF15. There were numerous open meetings held throughout the week, led by Bill Collis of the ISCMNS and Michael McKubre of the IAC, where international participants discussed the future of how ICCFs would be run.

At the IAC meeting held on the night of October 7, Dr. Mahadeva Srinivasan (former head of the Neutron Physics Division and associate director of the Physics Group at the Bhabha Atomic Research Centre—BARC) was elected chairman for ICCF16. In his proposal Srinivasan explained that the conference would be conducted under the banner of ISCMNS since he is not at present affiliated with any scientific institution in India. Bill Collis provided further details of the costs, emphasizing that the registration fee is expected to be kept substantially lower than that of the Rome meeting. Collis and Srinivasan had earlier gone over all the relevant details involved in conducting such an international conference.


Mahadeva Srinivasan

ICCF16 is tentatively scheduled to be held from February 6 through 11, 2011 in the southern India city of Chennai (formerly known as Madras) at the GRT Convention Center.

The conference has rotated between three continents (North America, Europe and Asia) since its inception in 1990. This is the first time that the conference will take place in India.

In an email, Srinivasan lamented the status of India's program: "The sad fact is that almost no work is going on in India related to cold fusion at present. From the mid-1990s until last year India was completely blanked out of the cold fusion map after making a brilliant start in 1989 when BARC had the world's biggest group in the field with 50 scientists and 12 groups."

In January 2008, Srinivasan organized a one-day workshop at the National Institute of Advanced Studies (NIAS) in Bangalore, titled "Emerging New Concepts for the 21st Century: Low Energy Nuclear Reactions." Researchers Michael McKubre, Edmund Storms (via pre-recorded speech) and Srinivasan and the *New Energy Times*' Steve Krivit presented on the status of the cold fusion field.

Srinivasan says, "I think that NIAS meeting has served as a turning point. Since then I have been chipping away at the resistance to cold fusion in India! It is my expectation that hosting ICCF16 will go a long way towards revival of CMNS research in India." He commented that the early stages of planning are going well: "As things stand I am awaiting the blessings of Dr. Anil Kakodkar, Chairman of the Indian Atomic Energy Commission, to whom I have sent a formal proposal following a long telephonic chat. We know each other well from my BARC days. I don't need any financial support from the Indian authorities, but unless they cooperate the whole purpose of my undertaking this onerous responsibility would be futile. My purpose is to revive interest in a big way, not only attracting young people to the field but also hopefully even private industry."