This document with hyperlinks is available at: http://insiemecontroilcancro.org/1pdf.htm

President of United States of America, Honorable Barack Obama.

Prof. Samuel Aronson, Brookhaven National Laboratory (BNL) Director.
Prof. Steven Vigdor, BNL Associate Laboratory director for Nuclear and Particle Physics.
Prof. Ralph James, BNL Associate Director Energy, Environment, and National Security.
Prof. Reinhold Mann, BNL Environmental and Life Science Director.
Prof. Fritz Henn, BNL former co-director of Life Sciences.
Prof. Avraham Dilmanian, BNL Cancer Diagnostics and Therapies.
Prof. Joanna Fowler, BNL Radiotracer Chemistry, Instrumentation and Biological Imaging.

Prof. Piermaria Oddone, FERMI National Laboratory (FNAL) Director.
Prof. Gregory Bock, FNAL Associate Director of Research.
Prof. Roy Rubinstein, FNAL Assistant of Director of Research.

Prof. Andrew Lankford, Prof. University Irvine (CA), Deputy Spokesman Atlas Experiment at LHC.

cc. Mrs. Vanna Sereno, founder of the group "Insieme contro il cancro"

March 23, 2011

Subject: **SAVE LIVES AND REDUCE HEALTH CARE COSTS by focusing on EFFICIENCY and INNOVATIONS.** *Request to Decision Makers and experts in particle physics to contribute to the objective of the Leonardo da Vinci competition targeted to identify with unbiased, scientific arguments the most efficient solution in particle detection for early cancer diagnosis and to point out any project in any other field, based on solid scientific arguments, that has high potential to reduce premature cancer death.*

Dear Honorable President of United States Barack Obama,
Emeritus Scientists,
Supporters of the interests of cancer patients:

We are impressed by the tenacity and consistent work carried out over the past twenty years by researcher Dario Crosetto in his scientific activity to the benefit of mankind. We now feel it is time to address in depth the issue of identifying the cancer research projects that have highest potential to reduce premature cancer deaths through a PUBLIC competition where the "JUDGE" is the result from one or more formulas and/or specific scientific criteria.

Among the cancer research projects that provide highest potential to reduce cancer deaths we would like to point out Crosetto's innovative 3D-CBS technology [1], which is hundreds of times more efficient and at lower cost than the technology used in current medical imaging devices.

Crosetto's 3D-CBS technology, available for more than a decade, needs to be addressed in depth because had it been funded it could have already saved many lives and costs.

Over 7,000 people have signed a paper petition requesting such an in-depth study with over 1,600 online signatures. Tens of thousands of people are also commenting on Facebook regarding the forthcoming Leonardo da Vinci competition (see Appendix A) after press releases were sent to over 21,000 media outlets (newspapers, TV, radio, online news, blogs, etc.) along with email announcements to over two million scientists, decision-makers, politicians, etc.

Crosetto's contribution to science is not only his innovations: The greater contribution is his rigorous open scientific procedures that he consistently implements which point the way to make scientific truth prevail for the benefit of mankind.

As Crosetto's innovations are valuable for reducing costs, improving particle detection in High Energy Physics and in early cancer detection and cost reduction (compared to other approaches and projects, no one has been able to point out another project superior in efficiency at a lower cost), then **how much more valuable is** the path he has pursued all these years in implementing the tools [2] and scientific procedures (see Appendix B) aimed to establish and verify for each new cancer research project the existence of **the link between the goal to be reached and the missing key element** that the researcher claims to have found in his proposed research in order **to create a significant impact in achieving the final goal**.

Crosetto has identified the following priorities needed to optimize research targeted to benefit mankind making the best use of available funding, avoiding useless waste and obtaining maximum results:

1. **For each research project** the researcher should resolve to do the following:
    a. **Identify the key missing element**(s) (see page 5, example 1992, and page 6, example 2000) from among the existing elements which he believes will create the substantial impact necessary **for achieving the desired goal** for the benefit of mankind.
    b. **Explain,** with solid scientific arguments **the link between the missing key element** that he claims to have found **and the desired goal** mentioned above. (For example: the **link** that one can establish between the **efficiency** in capturing signals from tumor markers and the **reduction in cancer death** through the twenty-two WHEREAS of the rules of the competition [3])
    c. **Provide a percentage estimate of the results** related to the impact on the FINAL OBJECTIVE that he believes can be attained with his project.
    d. **Provide a plan** that he intends to adopt **to measure these estimated results** relative to the final objective and not limited to his project.

1. **The need to create a selective system** among cancer research projects by implementing scientific procedures where the dialogue and discussion among researchers and reviewers is made PUBLIC, ensuring **the "JUDGE" is the result from one or more formulas and/or specific scientific criteria**, clearly defined in the rules of the competition awarding grants or prizes, and not based on the "unsupported opinion" of a reviewer. In order not to penalize long-term basic research, the decision to award funding should refer to two independent budgets: one for fundamental (basic) research and another for applications that will provide short-term results (less than 10 years).
2. **The need to create tools and scientific procedures** (see Appendix B) that will uncover projects that optimize benefits to mankind by requesting Researchers and Principal Investigators implement points 1 and 2.

The implementation of these priorities will create a true revolution in research that will increase efficiency, lower costs, optimize results, and advance many fields of research.

Dimension of the cancer calamity that is still awaiting a solution

In the specific case of cancer research, **the desired objective is the reduction in cancer death**.

Each year cancer kills [4] prematurely over 7 million people in the world, more than any other disease or war.

According to the June 2, 2010 report from the World Health Organization: **by 2030 there will be more than 13 million deaths from cancer** around the world and nearly 21 million cases diagnosed annually [5].

A real calamity that in spite of conspicuous investments **costing** [6] about **$750 per year per person** ($741 billion/year in the 38 most industrialized countries in the world, showing an **increase of direct medical expenditures for cancer in the U.S. of 100 fold in the past 50 years** [7]), there were meager results [8] in **cancer death reduction of only 5%** during the last 50 years (even showing an increase of 20% from 1975 to 2007, as reported in 2010 by the National Cancer Institute –NCI- [9]), **while for heart disease the decrease was 64%, for stroke it was 74% and for flu and pneumonia it was 58%** (see article in *The New York Times* on April 24, 2009 [10], FORTUNE Magazine, March 22, 2004 [11] and WIRED Magazine December 22, 2008 [12]).

These data call for a change in direction in cancer research [13].

That the direction needs to be changed to make it more efficacious is evident when one becomes aware that the **reduction of the cancer death rate in the world's most industrialized countries** with a cancer cost of $741 billion/year **is approximately the same as in less developed countries** that invest less money (see graph by NCI, WHO, ACS at [16]).

Instead of assigning funds without asking the Researcher and/or the Principal Investigators (P.I.) what society will receive in return, the idea of asking the P.I. to provide an estimate [14] in reduction in cancer death and costs and how they plan to verify their results experimentally on a sample population, with respect to previous years, can only improve the cost-benefit ratio and uncover the best projects.

The document [15] and the poster [16] prepared by Crosetto outlining how to solve the problem of cancer and reduce its economical burden deserve serious consideration.

Creation of the Leonardo da Vinci Competition by those who truly want to reduce premature cancer death and cost

The desire of some philanthropists and **those who truly want to reduce premature cancer death and cost** created the Leonardo da Vinci competition [17] as it will identify the most efficient solution in particle detection for early cancer diagnosis by uncovering those projects that can demonstrate, in the puzzle of the existing elements (technologies and knowledge), **the connection between innovative key missing elements and the final objective to reduce premature cancer deaths.**

This competition not only satisfies the twenty-two "WHEREAS" statements for which the result from the **FORMULA of the efficiency** (reported at page on 6 of the competition) **is the main "JUDGE"**, **but it can also identify any approach, innovation or project in any cancer research field** (vaccine, drugs, therapies, etc.) which is based on solid scientific arguments t**hat have a high potential to reduce premature cancer death**.

These other projects, besides receiving visibility in the world provided by the Leonardo da Vinci competition, will drive the creation of other competitions in different fields where selection of the best project will be made based on different formulas and/or other scientific criteria so that these too may be funded and advance science to reduce cancer death in their specific field.

Request to decision makers and experts in particle physics to contribute to identifying the most efficient solution in particle detection for early cancer diagnosis

Because of the importance of the rules of the Leonardo da Vinci competition, the draft of these rules containing the key formula and criteria that will be used to award the prize, have been submitted via email to the attention of thousands of scientists in the field of particle physics, starting with a direct discussion in a meeting lasting about one hour and half on January 12, 2011 between CERN's Scientific Director, Prof. Sergio Bertolucci, Dr. Vincenzo Vigna and researcher Dario Crosetto, followed by a meeting between the latter two and Prof. Andrew Lankford, Deputy Spokesman of the Atlas experiment at the Large Hadron Collider (LHC).

Not a single scientist of the thousands contacted objected to the most important parameter: **the formula defining efficiency as the ratio between the number of signals captured from the tumor markers and the number of signals emitted.** After Professor Lankford commented that a criterion should be established defining the relation between the two objectives - higher efficiency and lower cost - a new version of page 6 of the rules of the competition was created on February 2, 2011 and at this time no objections have been received.

Experts in particle detection, when requested for comments to improve the rules of the competition, have responded that due to their involvement in other projects they could not allocate hours to satisfy the request. **As this issue** of identifying the most efficient solution in particle detection for early cancer diagnosis **is of extreme importance, affecting the lives of millions of people, there needs to be a way to find a few hours of their time** for their input on the rules and whether they can find a way to improve upon them.

Request to President Barack Obama to support public scientific procedures in order to create a paradigm change in the fight against cancer by improving efficiency that will save more lives and Reduce Health Care Cost

In order to solve the issue of the additional hours needed so that experts in particle physics can contribute to **identifying the most EFFICIENT solution in particle detection** for early cancer diagnosis, and to **extend the EFFICIENCY in several other areas** that will implement a paradigm change [18] in oncology research to improve the cost-benefit ratio, we respectfully address this problem to the President of United States who could:

1. **Indicate a priority so that this problem** (already supported by thousands of people and gaining wide support as more people become informed of its goal to identify the most efficient technology to **SAVE LIVES** and **REDUCE HEALTH CARE COSTS** [19]), **can be addressed when compared to other problems in particle physics.**

   It would be most desirable for all people if leaders of the National Laboratories would provide constructive comments to the rules of the Leonardo da Vinci competition for selecting more efficient and less costly solutions.

2. **Support public scientific procedures targeted to assess and verify the existence of a link between the missing element** that the researcher claims to have found in order to contribute to the solution and achieve **the final objective of reducing premature cancer death.** This procedure would improve efficiency, thus the cost-benefit ratio.

   These Public Scientific Procedures would request that every researcher and decision-maker who proposes a project to fight cancer **must provide an estimate of the percentage of reduction of cancer death and cost** for each life saved (supported with scientific arguments publicly in a discussion among peers), **that he believes his project will achieve.** Furthermore, it would request that every researcher or Principal Investigator **compare his estimate with those of other projects**. (Projects will refer to two budgets: one for long term basic research and another for applications providing short-term results as specified on page 2).

Although we have already moved the deadline for sending comments to the rules of the Leonardo da Vinci competition from January 31, to March 7, 2011, in order to complete the latest exchange of information with FERMIlab and CERN and to give an opportunity for BNL to contribute their knowledge to this important issue, the deadline is now further moved to April 7, 2011.

However, because the Leonardo da Vinci competition is open to all projects in any field that show a potential to impact cancer death reduction, **all experts who hold a position of responsibility for the solution of the cancer problem are expected to answer even if the deadline has passed** because many taxpayers have put their trust in them, and their comments **could be useful in creating future competitions** targeted to uncover more efficient and more economical solutions **aimed at saving lives** and **Reducing Health Care Costs**.

Comments related to the identification of the most efficient solution in particle detection for early cancer diagnosis will be available at the web site:

www.unitedtoendcancer.org/forum/efficiency_to_save_lives_reduce_costs.pdf.

Third parties witness Crosetto's innovations and research activities targeted to make scientific truth prevail for the benefit of mankind

After studying Crosetto's work in depth we would like to draw your attention to the following facts and documents listed in the next chapters of this letter which show how his work always targets scientific truth for the benefit of mankind. We begin here with an excerpt from the letter written by the Director of the Superconducting Super Collider –SSC- (also Director of FERMIlab) to Crosetto on February 4, 1994: "…***I salute you and encourage you to continue your innovative activity to the benefit of mankind***" [20].

Since then Crosetto continues to pursue scientific truth tirelessly, discussing issues openly at international scientific conferences, reviews, universities, research laboratories and with experts, and always requesting these discussions be public (as should be all reviews of innovations or projects which deal with advantages to the collectivity, who are funding the salary of these experts).

Inventions and Discoveries: Crosetto's success in identifying the missing elements in the puzzle of known elements in order to find the solution to improve efficiency, reduce cost, and make advancements.

- **In 1992,** while the scientific community was designing circuits for the first level trigger that could execute a single cabled algorithm using fast expensive electronics, **Crosetto**, who arrived at the SSC in Texas in 1991, **tackled the problem** from a completely different angle that would allow him **to improve efficiency in identifying new particles and reduce cost**.

  Having understood the problem of the first level trigger, and having identified the missing elements that would **break the speed barrier in programmable real-time high-speed data acquisition and processing applications**, he invented the 3D-Flow [28] parallel-processing system architecture with key elements: bypass-switch, bypass-register, communication in six directions with a latency shorter in some directions than others, and an optimized instruction set.

  Key elements are not limited to the 3D-Flow processor, but extend to the detector assembly, its segmentation, and the coupling of the detector to the electronic system. **Their synergy** allows the use of off-the-shelf, low cost technology, while providing programmability to execute different algorithms at first level trigger that have the capability to exchange data between adjacent trigger channels, thus **allowing a more accurate reconstruction of the particle's total energy.**

  Crosetto's basic invention in this field first became public in 1992 when **within 35 days he presented it at three international conferences** in Annecy, France; Corpus Christi, TX; and at the IEEE-NSS-MIC conference, Orlando, FL, followed by **its publication the same year, in the prestigious scientific journals:** Nuclear Instruments and Methods in Physics Research and IEEE-NSS-MIC [21].

  Its value is undeniable as **the traditional approach** of using fast expensive electronics (GaAs, ECL, etc.) at first level trigger adopted in experiments **before Crosetto's invention became obsolete** and other researchers moved toward building programmable first level triggers, eliminating communication boundaries between trigger channels as its advantage was better understood (first at chip level, then at board level and in the future it will be eliminated at the system level).

  Looking back over how advances have evolved over the past twenty years, one realizes that although it is taking decades to FULLY implement all Crosetto's innovations (for example transferring point-to-point data from detectors to electronics has not yet been implemented twenty years later), little by little **even researchers who initially opposed Crosetto's inventions** claiming them to be unnecessary (e.g. claiming programmability at the first level trigger was not

needed, no-boundary communication with adjacent channels was not needed, etc.), are now beginning to understand their advantages and **are more and more favorable to make use of them.**

It would have been technically advantageous and would have saved money had funding been made available over a decade ago when Crosetto first made available his inventions, **so that he could prove ALL their benefits** (as well as the advantages of other inventions derived from the primary one), rather than waiting until they are understood by the decision-makers in small incremental steps. Crosetto, subsequent to this basic invention created several other inventions as shown in his patents until 2007.

- **In 2000**, while people working in the field of Medical Imaging were erroneously convinced (and were also able to convince large industries in the field such as Siemens, General Electric and Philips) that in order to increase PET efficiency the efficiency of the crystals needed be improved, **Crosetto, by analyzing the problem as a whole,** not just focusing on crystals, **was able to generate several inventions [22] that would enable much earlier cancer detection by improving the efficiency of current PET by hundreds of times,** reducing the level of radiation to the patient and reducing Health Care costs.

  He started by **demonstrating with** a simple **analysis of experimental data** shown in Figure 1 on page 136 of the technical-scientific book [23] published in the year 2000, and in Figure 1 on page 4-5 of the article published in Word Scientific in 2003 [24], **that crystals were already over 80% efficient** while the efficiency of the electronics, the crystal assembly, and the coupling of crystals with **electronics, was only 8%.**

  Also in this case, as in 1992 for the 3D-Flow system, by understanding this "missing element" in the puzzle of the known elements, **Crosetto was able to generate in increments his new inventions to overcome the limits of current PET** as described in Figure 1 on page 2 of the article [25] published in 2003 in the IEEE-NSS-MIC Conference Proceedings (and poster presented at the same Conference [26]).

  The evidence that **Crosetto's claims are solid comes also from third parties.** For example, in 2002 the **President of Siemens** Medical Imaging and the Director of the PET group at Siemens **in a meeting with Crosetto** lasting the entire day (which was recorded with the agreement of all participants) **stated that it was impossible to increase substantially PET efficiency** as the electronics and other components had already reached maximum efficiency. Then a few years later, **in 2007, Siemens announced** on their website that **they could indeed improve efficiency by 70%** because of improvements to the electronics, showing that Crosetto has been right.

Scientific discussions between Crosetto and experts from among the most prestigious research centers in the world (FERMIlab, CERN, BNL).

Crosetto has discussed his ideas with the scientific community on numerous occasions. Here we would like to cite three such discussions with FERMIlab, CERN & BNL considered among the most important research centers in the world.

- **On December 14, 1993 Crosetto passed a major international scientific review** [27] requested by the Director of SSC when he presented in the **FERMIlab auditorium before hundreds of scientists** his new 3D-Flow conceptual approach of the First level Trigger (see the innovative concept described in one page at [28]). **The review continued** the same day with a dialogue between Crosetto and **a panel of experts in the field from CERN, universities and industries**.

  Charges to reviewers [29], Documentation presented at the review [30]).

  The review panel recognized Crosetto's invention as stated in their report: "***The committee finds this project*** *an interesting and* ***unique concept*** *for constructing programmable level-1 trigger*". "*We believe the concept will work…*", "*…we do not believe that there are any major flaws in the proposed system…*" Crosetto later confirmed the statements of the panel when he constructed a working hardware prototype.

  The review panel recognized the value of Crosetto's invention and assigned him $150,000 (the maximum amount available during the SSC closeout and extended for one year after SSC officially closed out in October 1993, to "*…complete the current development and leave the project in a state where it could be continued…*". **Further evidence of the panel's recognition of the value of Crosetto's invention and how it could open doors to new frontiers** can be seen in the following statement:: "***…given this feature*** [referring to the 3D-Flow architecture], ***experimenters would probably think of clever uses not now possible.***" . Both these statements are part of the review panel's official written report.

  The recognition that Crosetto's invention is a breakthrough in particle detection providing a programmable solution for level-1 trigger of different High Energy Physics (HEP) experiments and advantages to other applications **is confirmed by the Head of the Computing Division at FERMIlab,** Joel Butler, who, in a letter [31] dated February 27, 1995, wrote the following in regard to the 1993 review: "*…This review committee found the design to be promising for its potential application in HEP triggering and possibly elsewhere, and to be a technically sound and feasible approach.*", "***The 3D-Flow Architecture offers the possibility of performing decision-making, image processing, and pattern recognition in a flexible manner****…*", "***These elements make it a promising approach to solve many problems,*** *ranging from high speed triggering applications in High Energy Physics to image processing applications of significance in the commercial sectors*", "*As far as applications to High Energy Physics, at present* ***the 3D-Flow project is the only detailed study demonstrating the feasibility of executing several level-1 trigger algorithms of different experiments***."

- **On September 12, 1994 and on January 12, 1998 Crosetto was invited to give a seminar about his innovations at CERN.** After the seminars, prominent experts in the field (Division Leader, Deputy Division Leaders, Group Leader, etc.) wrote letters of appreciation of Crosetto's innovations and work. Excerpts from these letters may be found at [32].

  The esteem for Crosetto's work from leaders at CERN continued as can be seen in the letter of praise by the Division Leader [33] of Electronics and Computing in Physics (ECP) and with the acceptance by the editor of a prestigious scientific journal (an emeritus scientist at CERN) of **the publication of a 45 page article submitted by Crosetto.** Crosetto's article was peer-

reviewed and accepted for publication in less than 30 days (*Nuclear Instruments and Methods in Physics Research A, vol. 436 - 1999 - pp. 341-385* [34]).

The fact that these supporting **letters** and other documentation are **from experts who are working on experiments in competition with one another underscores the significance of his inventions**. Their value is further demonstrated when a questionnaire [35] was submitted to several relevant scientists in the field and **no one could point out any project superior in efficiency**, flexibility or programmability compared to the 3D-Flow system for High Energy Physics and later to the 3D-CBS system for early cancer detection.

- **On September 24, 2009,** as the press release [36] announced the National Medal of Science Award by President Obama to Joanna Fowler, she was attending a **seminar** [37] **by Crosetto at Brookhaven National Laboratory** on his innovative 3D-CBS which would improve hundreds of fold the efficiency of current PET, followed by a Q&A discussion.

  After Fowler and her colleagues from the BNL Medical and Physics Department listened to Crosetto's innovations and claims and **following his satisfactory answers to their questions, BNL Associate Director Ralph James promised to write a letter of support to receive funding. However, funding did not arrive.**

  Had funding arrived over a decade ago to build a 3D-CBS hundreds of times more efficient than current PET, then Fowler's already significant contribution using current PET would have been made even more remarkable. In this regard it is appropriate once more to cite the review panel of Crosetto's innovations at FERMIlab in 1993 "*…given this feature, experimenters would probably think of clever uses not now possible.*" Or the comment made by Jerry Merryman, the inventor of the handheld calculator, who wrote in the questionnaire evaluating Crosetto's 3D-CBS innovation at the 2003 review in Dallas, TX: "*I have seen many technological advances during my career and it was always impossible at the beginning to anticipate every possible benefit and use of the advance. The same must be true in this case.* ***There will be far larger value to this than has so far been listed.***"

  The difference in this case is that instead of contributing to discover new particles, **Crosetto's innovation could have already saved many lives if fully funded.**

  The entire event that lasted more than two hours, including the Q&A session, has been video recorded [38].

All this could have been possible if Crosetto's innovations would have been funded over a decade ago when he first made them available.

Public Scientific Procedures implemented by Crosetto to make prevail the scientific truth through a dialogue among peers

Since that first major international open scientific review [27] **of Crosetto's innovations in 1993 at FERMIlab** (see at page 6 of this document), Crosetto has always implemented scientific procedures at international reviews, workshops and conferences by presenting and discussing with colleagues in a true public peer review process the advantages [39] of his 3D-CBS innovative technology. In order to allow comments and constructive criticism he requested these events be made available in real-time on the web:

- **On July 1, 2003** [40] an international public scientific review of the 3D-CBS innovative technology was organized in Dallas, TX. **The review panel consisted of physicists, an engineer, an oncologist, the Director of one of the largest PET centers in U.S., an astronomer expert in photons and an entrepreneur. Jerry Merryman, co-inventor with Nobel laureate Jack Kilby of the pocket calculator,** was one of the distinguished panel members.

  The agenda of the review is available at [41]. Charges to reviewers can be found at [42]. Crosetto made available a conspicuous documentation, among which: the NIM article (pp. 341-385) [34], his technical-scientific book [23] and the article he presented at the University of Geneva in 2001 [43]. The slides he presented are available at [44].

  During the review a member of CERN Council (unknown to Crosetto) asked a question in real-time via web from Europe to which Crosetto answered satisfactorily. As a result **this CERN Council member invited Crosetto to present his project at the Conference in Particle Physics and Medical Application** at Villa Olmo, Como, Italy in October 2003 [24]. Crosetto accepted his invitation and returned to the same conference to present his work in 2005 [45], 2007 [19] and 2009 (article [46], poster [47]).

  The final written report available at [48] recognized the value of the 3D-CBS technology and its need for funding.

  The video recording of the review is available on YouTube at [49].

- **On June 23, 2008**, [50] another international public scientific review on the 3D-CBS technology was organized in Rome, Italy, at the headquarters of the Order of Physicians of Rome. **The review panel consisted of physicians, physicists, entrepreneurs, an anatomic-pathologist and a member of the Italian Government from the Superior Council of Health of Italy.**

  Agenda [51]. Charges to reviewers [52]). The slides presented by Crosetto are available at [53].

  The entire review was made available via web in Italian with a simultaneous translation into English. At the end of the review **the panel filled out a questionnaire and all recognized the value of the 3D-CBS technology and its need for funding.**

  The video recording of this event is available at [54].

- **On September 30, 2009** [37], a public scientific workshop on the 3D-CBS technology was organized at the Hospital Polyclinic San Matteo in Pavia, Italy. Among the members [55] of the panel were physicists, physicians, senior scientists, **the President of the Italian Association of Medical Physics, Prof. Guido Pedroli,** a former Director of the Department of Surgery of the University of Pavia, a former President of the Computer Science Dep. of the Univ. of Turin, Italy.

  Crosetto's slide presentation is available at [56].

  This meeting-debate was also made available via web. At the conclusion **the members of the forum answered a questionnaire [57] in real-time which recognized the value and benefits to the patients of the 3D-CBS technology** (in particular the electronics, also recognized by Prof. Pedroli, President of the Italian Association of Medical Physics, as seen in the video).

The video recording of this event is available at [58].

- **On October 28, 2010** [59], the latest public scientific review took the form of a workshop organized at the department of Physics of the University of Pavia, Italy. **Its main purpose was to explain the key features of Crosetto's innovation, the resistances [60] encountered to innovations and compare the 3D-CBS technology with the Axial-PET project that had recently received the first prize at CERN that February during the Workshop "Physics for Health" (see video at** [61]).

  Dr. Vigna's slide presentation is available at [62]. Crosetto's slide presentation is available at [63].

  The entire event was made available on the web through the EVO system and through streaming.The links to the video recording are available at [64].

In addition Crosetto has presented his work on several other occasions:

- As a **lecturer invited by CERN School of Computing** in 1990, where he presented his **knowledge in processor architectures and the use of DSP in Triggers** and Data Acquisition. The title of this lecture available at [65] is: "Digital Signal Processing in High Energy Physics".
- **Before Nobel Laureates** (for example at the seminar he gave at the World Laboratory in Erice, Italy in 2008 at the event entitled "Planetary Emergencies". See his article published in World Scientific [66] and the video recording at [67]).
- **To post-doctorate students in Physics and Medicine** when he gave seminars at Universities (e.g post-doc at UTSWMED in Dallas, TX [68], post-doc at the University of Pavia, Italy [69], etc.),
- **To several physicians and decision-makers in health care** when he gave seminars at several hospitals and universities:
  - On April 11, 2007 at the University of Pavia, Institute Human Anatomy, Crosetto presented before faculty Docents, including the President of the Department of Medicine and Surgery, Prof. Alberto Calligaro, the President of the Order of the Physicians of Pavia, Dr. Giovanni Belloni, the Scientific Director of the Policlinic San Matteo of Pavia, Prof. Carlo Alberto Redi and several other decision makers, a seminar titled: "*Changing the role of PET: Measuring minimum abnormal metabolism targeted to early detection*" Slides presented by Crosetto are available at [70], Video recording of the event, including Q&A and round table discussion is available at [71];
  - On April 12, 2007 at the University Campus Bio-Medico in Rome, Crosetto gave a seminar before faculty Docents. Prof. Luigi Marrelli, Professor in Chemical Reactor and Engineering for Artificial Organs was the local organizer of the event. Slide presented by Crosetto are available at [72], Video recording of the event, including Q&A and round table discussion is available at [73];
  - On August 25, 2008 at the Istituto Nazionale Tumori Regina Elena, Rome [74];
  - On August 29, 2008 at the Istituto Tumori of Milano National Cancer Institute of Italy [75];
  - On September 4, 2008 at the Centro di Riferimento Oncologico (CRO), National Cancer Institute, Aviano [76];),
- **At public events** such as:
  - On February 26, 2008 at the Province of Cuneo (see video recording of the event [77]) which was sponsored by Honorable Raffaele Costa, Italy's former Minister of Health; the seminar

- On December 5, 2009 at the Conference "The contribution of Italian researchers in the world." In Houston, TX [78].

At all these events (seminars, conferences, meetings) Crosetto provided satisfactory answers (most of **these seminars were followed with a Q&A session which are available in hundreds of hours of recording)**.

Furthermore, there exists extensive documentation of **communications between Crosetto and the National Institutes of Health (NIH) for more than twelve years.** For brevity we report only one **letter [79] dated April 10, 2007 from Crosetto to NIH Director** Prof. Elias Zerhouni and the video [80] of a Press Conference on the "Future of Medical Imaging," held in Washington D.C. on January 31st, 2006, when Crosetto asked questions and provided [81] scientific documentation to Zerhouni in support of the higher efficiency and lower cost of his 3D-CBS innovative technology. **Zerhouni promised to answer Crosetto's letter, but his answer never arrived**.

The NIH Director, as with many other decision makers in Health Care who Crosetto has contacted, **ultimately could not sustain a technical scientific in-depth discussion about** the 3D-CBS technology **because it went beyond his knowledge.**

Crosetto's innovations relate to the specific field of particle detection, and therefore the **discussion should be among experts in particle physics at FERMIlab, BNL or with physicists who work on HEP experiments** (costing over $1 Billion each, at the LHC accelerator costing over $12 Billion at CERN).

Regardless, **if these experts do not spend time to study Crosetto's innovations in depth they would have difficulty grasping ALL the advantages and benefits** as has occurred in the past, for example with reviewer Les Rogers, expert in particle physics, as mentioned in the next section.

Demonstration with simulation and also in working hardware of Crosetto's innovative concept

- **In 2000**, at the IEEE-NSS-MIC Conference in Lyon, France, **Crosetto presented two articles** [82] and **a technical-scientific book** [23] on the 3D-CBS innovative technology. **He also presented his 3D-CBS simulator** at a booth at the Industrial Exhibition, at the same conference. The space of the booth was provided free of charge by Chris Parkman from CERN, Chairman of the Industrial Exhibition. **The 3D-CBS simulator at the system level is** an application program written in C^{++} **capable of simulating a system of tens of thousands of 3D-Flow processors.** The same behavioral model of four 3D-Flow processors in a chip **was also presented on a simulator at the GATE level** (in VHDL language, synthesized using Synopsys tools).

  Because of Crosetto's pure and genuine belief that **by following A SCIENTIFIC PROCEDURE, science and innovation can prevail to benefit mankind when addressed through an open, serious, responsible dialogue,** he distributed free copies of his book [23] to tens of leaders in the field from academia and industry present at the conference.

  Senior scientist Aaron Brill appointed IEEE reviewer Les Rogers who had just received an award at the same conference **to review Crosetto's innovation.** The email **correspondence** between Crosetto and Les Rogers, **available at [83], clearly shows how Les Rogers' viewpoint, based initially on preconceived concepts in particle detection changed toward understanding Crosetto's innovation after over one month of email interaction between the two**.

- **In 2001**, the same Chris Parkman from CERN provided Crosetto a booth [84] free of charge at the Industrial Exhibition area of the IEEE-NSS-MIC conference in San Diego (CA).

  Here **Crosetto presented the first working prototype which demonstrated in hardware the functionality and feasibility of his theoretical concept.** The prototype consisted of **a small**

system made of eight 3D-Flow processors arranged in two layers with North-East-West-South (NEWS) ports interconnected [85].

This small system implemented in two FPGA from Altera **demonstrated that it was working properly**. Timing performance was shown on an oscilloscope and participants at the conference could select any pattern cluster configuration from a set of switches on an input board to see if a specific cluster was identified on LEDs of an output board.

- **In 2003** Ralph James, Associate Director at Brookhaven National Laboratory and General Chairman of the IEEE-NSS-MIC Conference in Portland (OR), offered Crosetto free admittance to participate at the conference.

  Three articles [25] submitted by Crosetto were accepted at the conference. **One of these articles [86] described a 3D-Flow DAQ-DSP IBM PC board for photon detection with sixty-eight 3D-Flow processors** (the board [87] consists of 2,211 components, over 20,000 contact pins connected through only 8 layers of printed circuit board for signals and 6 layers for power and ground), which is the component to build a modular 3D-CBs system.

  This board is the industrialized version of the proof of concept in hardware that he presented two years earlier in San Diego (CA).

  On this occasion Ralph James wrote to Crosetto: "*I will say that any approach (even from a Nobel laureate) that suggests 2-3 orders of magnitude improvements in anything will meet considerable skepticism. This must be expected. However, you should not be discouraged nor feel despair. Your persistence will win, if you are correct. Failure will only result if you quit,* ***and you were right after all***."

  However, funding has yet to be provided, despite no one being able to disprove with scientific arguments the value of Crosetto's 3D-CBS innovative technology.

- **In 2006** the proof of concept of the innovative components of the 3D-CBS technology were proven to work in hardware to inspectors from ABO Project (Italy) who reviewed the entire project for four days in Dallas, TX during 17 hours of meetings (all video recorded). At the conclusion they filled out and **signed a questionnaire which approved and witnessed the advantages of the system.** (See the questionnaire at [88]).

A description of Crosetto's proof of concept of the first invention in the field of Trigger that was later followed by several other inventions in HEP and in Medical Imaging as they compare with other approaches **is described in [89].**

Reasons which may explain why Crosetto has not received funding for his innovations.

The lack of an in-depth study of his innovations from the decision-makers handling taxpayer and donor money **may not be the main reason to explain the delay in transferring benefits** from Crosetto's innovations to the bed of the patient. Crosetto has also had to deal with the **dissemination of untrue information about his work**. For example, recently Crosetto was in receipt of such an email sent by a CERN leader and copied to a long list of scientists. Crosetto immediately refuted these statements. Then, the CERN leader sent Crosetto a curt response requesting: "It is up to you to show I wrote something not true." Crosetto responded with rigorous scientific arguments in a professional and exhaustive way.

18 years after an invention was officially recognized as benefitting mankind, funding to complete the project has not been provided. Action is needed to remove further delay

It has now been eighteen years since SSC Deputy Director Tom Kirk asked Andy Lankford to draft the charges to the reviewers of Crosetto's innovation. and "*charged*" (assigned) Joel Butler, Head of the Computing Division at FERMIlab to organize the review that Crosetto passed.

Innovations like this with potential to benefit many applications (as was stated in 1993 by FERMIlab review panel and later by several other review panels and experts [90]) should not be waiting for eighteen years to receive funding. **The positive review from FERMIlab should have been sufficient to justify full funding of Crosetto's innovation before funding other projects that had not been through such a rigorous international review.**

We have observed other attempts by Crosetto to overcome what have delayed and blocked innovations and how customers have changed over the years:

- We see that Crosetto's innovations have been officially recognized and approved beginning with the 1993 FERMIlab review, and that many letters of support for funding were written then and since. Therefore, a legitimate question exists on why funding to complete this valuable project has not been provided.
- We observed that the document [24] stated: "*the result of the review will be used by SSC in determining the level of support which this project should be given as part of the SSC closeout.*" Crosetto's innovation was recognized valuable and received maximum support to …"*complete the current development and leave the project in a state where it could be continued…*"
- However, **now the customer has changed** because the result of the Leonardo da Vinci competition will not only have to satisfy the laboratory leaders' objectives (as it was for the SSC) **but also the philanthropists, taxpayers and cancer patients, who want to know which particle detection project has the highest potential to reduce cancer deaths and cost.**
- We see his efforts to satisfy the legitimate requests of taxpayers who ask why the decision-makers who handle their money are funding other projects when Crosetto's work has been recognized by groups of scientists to be more efficient and less costly. It is legitimate to request that scientists in the field either provide scientific arguments to invalidate Crosetto's claims or write letters of support to the decision-makers to assign grants for transferring the benefits of the inventions for clinical use.

The action needed to overcome these obstacles and remove further delays of innovations that will benefit mankind is the open public scientific procedure where parties who have different ideas to resolve this issue of identifying the approach that provides maximum efficiency at a lower cost can be accomplished by comparing their ideas in discussions referring to calculations, logical reasoning, and ultimately to results from experiments aiming to verify the claims of projects with highest estimates in efficiency.

Translated into practice this would mean:

- **Posting responses** to Crosetto from prominent researchers and decision-makers in the field and those of the three most prestigious laboratories and experiments in particle physics (FERMIlab, CERN, BNL, Atlas, etc.) on the web:

  www.unitedtoendcancer.org/forum/efficiency_to_save_lives_reduce_costs.pdf

- **Discussing these responses** publicly because taxpayers and cancer patients cannot wait indefinitely for scientifically substantiated answers and have the right to hear answers Crosetto receives from decision-makers who deny funding,
- **Holding a public scientific competition** on this issue as is currently taking place with the Leonardo da Vinci competition to find the most efficient solution for early cancer detection.

The facts listed above support the need for funding Crosetto's invention approved 18 years ago without further delay. To remove the risk that new inventions have to go through the same long process, the objectives of the Leonardo da Vinci competition need to be implemented.

Crosetto's intellectual honesty over the past decade shows his dedication to work for the benefit of cancer patients

Crosetto's intellectual honesty is demonstrated not only by his work over the past years but also by his commitment to donate 80% of the revenues from his patents to provide free 3D-CBS devices to hospitals and free screening examinations to low income patients of different countries. **The return in donation to the population of different countries will be proportional to the initial funding that governments of different countries provide for the construction and testing of 3D-CBS prototypes**.

With this action, the 3D-CBS becomes a project for all people interested in reducing premature cancer death.

His objective is clearly not personal profit but to benefit cancer patients.

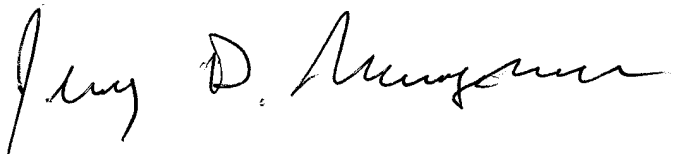
Recently, a philanthropist proposed a prize of 50,000 euros if Crosetto could show his project to be superior to the Axial-PET project that had won first prize at the workshop "Physics for Health" at CERN in 2010 and subsequently received funding from the Association Madame Curie. Crosetto's response was that the prize should go to the best project in the world and not be limited to the Axial-PET or the 3D-CBS.

The consequence of Crosetto's response was the creation of the Leonardo da Vinci Prize. Therefore **we are asking decision-makers in the field and experts in particle physics to contribute to the objective of this competition targeted to identify with unbiased, scientific arguments the most efficient solution in particle detection for early cancer diagnosis, and to point out any project in any other field, based on solid scientific arguments, that have high potential to reduce premature cancer death**.

Efficiency from science and innovations for saving lives and reducing Heath Care costs should come first.

Sincerely,

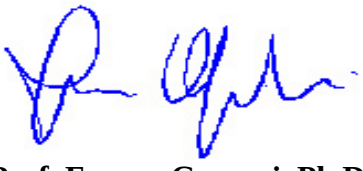
Dr. Frank Guy Ph.D.
Senior Scientist with 33 years experience at four National U.S. Labs: LBL, AFWL, LANL, SSC.
Participant at several reviews, workshops and debates on the 3D-CBS over the past decade, most notably: Chairman of the July 1, 2003 review panel of the 3D-CBS technology in Dallas, TX. Participant at the meeting with leaders from Siemens Medical Imaging on November 6, 2002. Member of the panel via web of the 2008 review of the 3D-CBS in Rome, of the Workshop at the Scientific Directorate of the Policlinic San Matteo on September 30, 2009 and of the Workshop at the Department of Physics at the University of Pavia on October 28, 2010.
Waxahachie, TX USA



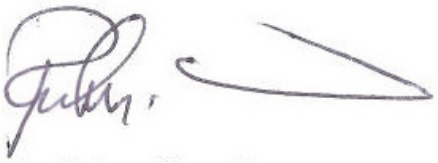
Mr. Jerry Merryman
Co-inventor (with Nobel laureate Jack Kilby and James Van Tassel) of the first handheld electronic calculator at Texas Instruments (Dallas Tex.), in September 1965. 50 years experience in electronics. 38-year career at Texas Instruments. Inventor of over 60 patents.
Member of the July 1, 2003 review panel of the 3D-CBS technology in Dallas, TX. Participant of several meetings regarding the 3D-CBS, most notably present when representatives from ABO Project, inspected the 3D-CBS project for four days in Dallas.
Dallas, TX, USA

Dr. Vincenzo Vigna, MD
Former Professor of Cardio-Surgery at the University of Pavia.
Specialist General Surgery, Cardio-Surgery, Lung/Thoracic-Surgery.
Leader, first-level at the Institute for Scientific Research and Cure, Polyclinic San Matteo of Pavia.
Organizer and Co-Chairman (with Prof. Luigi Marrelli, Professor in Chemical Reactor and Engineering for Artificial Organs at the Bio-Medical Campus of the University "La Sapienza" in Rome) of the 2008 review of the 3D-CBS in Rome, Italy.
Co-Chairman (with Prof. Sergio Ratti, Emeritus Professor of Physics at the University of Pavia) of the Workshop at the Scientific Directorate of the Policlinic San Matteo on September 30, 2009 and for the Workshop at the Department of Physics at the University of Pavia on October 28, 2010.
Organizer of several other meetings, debates, public events, including (thanks also to Prof. Sergio Ratti) the exhibition of the 3D-CBS technology at the University of Pavia June 15-19, 2009.
Pavia, Italy

Dr. Paul Bartholdi, Ph.D.
Retired Senior Astrophysicist and Computer Scientist at the Observatory of Geneva, Switzerland, with International experience.
Member of the July 1, 2003 review panel in Dallas, TX. Reviewer of several documents and article on the 3D-CBS project prepared by Crosetto.
Geneva, Switzerland.



Prof. Franco Gaspari, Ph.D.
Professor of Physics at the University of Ontario, Institute of Technology.
Member of the 3D-CBS review panel on June 23, 2008 in Rome, Italy. Participant at events via web (e.g. of the public round table on February 26, 2006 that was sponsored by the President of the Province of Cuneo, Honorable Raffaele Costa, of the Workshop at the Dep. of Physics at the Univ. of Pavia on October 28, 2010. Reviewer of several documents and articles prepared by Crosetto.
Oshawa, Canada



Mr. Ruben Sonnino
Vice President at one of the largest Semiconductor Companies in the world (Leader in Multimedia, Analog, MEMS and Power Applications).
Member of the July 1, 2003 3D-CBS review panel in Dallas, TX.
Member of the June 23, 2008 3D-CBS review panel in Rome, Italy.
Participant at the meeting with the leaders from Siemens Medical Imaging on November 6, 2002.
Supporter of the 3D-CBS project, reviewer of several documents and articles prepared by Crosetto.
Dallas, TX, USA

Dr. Danilo Verra, MD.
Specialist in Surgery, Anesthesiology, Reanimation, and Antalgica Therapy at the Intesive Therapy Division and Anthalgic Therapy Service at the Hospital Azienda Ospedaliera S. Croce e Carle di Cuneo. Palliativist volunteer for the past eleven years at ADAS ONLUS, an association that provides home assistance to terminal cancer patients.
Participated to the Workshop "Physics for Health" at CERN, Geneva, February 2010.
Panelists in several round tables public discussion most notably the one on February 26, 2008 at the Province of Cuneo, sponsored by its President, Honorable Raffaele Costa.
Cuneo, Italy.

Dr. Barbara Valeri, MD.
Surgical Pathologist
Specialist in Breast and Female Genital Tract pathology.
Surgery Pathology Resident in collaboration with Human Reproductive Medicine Unit of the S. Orsola-Malpighi Hospital, University of Bologna.
Specialist in Surgical Pathology at the National Cancer Institute of Milan, Italy in collaboration with their Experimental Oncology Department.
Member of the 3D-CBS review panel on June 23, 2008 in Rome, Italy.
Organizer of a seminar held by Crosetto at the National Cancer Institute of Milan, Italy.
Participant at several meetings with Crosetto to discuss the signals provided by the mutation of normal cells into cancerous cells and differences shown on the microscope.
Milan, Italy

Dr. Eng. Vittorio Remondino
Staff at CERN since 1980. Specialist in Magnet Design, Measurements and Analysis of Accelerator for Particle Physics.
Panelists at the public round table on February 26, 2006, sponsored by the President of the Province of Cuneo, Honorable Raffaele Costa.
Close follower of the 3D-CBS project for more than a decade.
Reviewer of several articles and documents written by Crosetto.
Geneva, Switzerland

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Prof. Ralph James, rjames@bnl.gov, BNL Associate Director Energy, Environment, and National Security.
Prof. Reinhold Mann, mannrc@bnl.gov, BNL Environmental and Life Science Director.
Prof. Fritz Henn, fhenn@bnl.gov, BNL former co-director of Life Sciences.
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Mrs. Vanna Sereno, ws@isiline.it, Founder of the group “Insieme contro il cancro.”
VL. MARTIRI INDIPENDENZA 6
12045 Fossano (Cuneo), Italy.

APPENDIX A: Rules of the Leonardo da Vinci competition: "FOR THE MOST EFFICIENT SOLUTION IN PARTICLE DETECTION FOR EARLY CANCER DIAGNOSIS**"**

APPENDIX B: Tools and procedures developed by Crosetto with the help of his collaborators, targeted to assess and verify (relative to each research project), the existence of a link between the missing element claimed by the researcher in his proposed research and the final objective to be reached.

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[16] Poster presented by Crosetto on 11/30/2010 at the Dallas Chamber of Commerce and in Houston on 12/04/2010 at the sixth Conference of the Italian Researchers in the World. Title: "HOW TO SOLVE THE PROBLEM OF CANCER AND REDUCE ITS ECONOMICAL BURDEN: Fund only research projects with real potential to reduce premature cancer death." http://www.crosettofoundation.com/uploads/410.pdf.

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[53] A copy of the slides presented by Crosetto at the international public scientific review of the 3D-CBS innovative technology that will be held on June 23, 2008 in Rome, Italy are available at: www.crosettofoundation.org/uploads/433.pdf.

[54] Links to the video recording of the international public scientific review of the 3D-CBS innovative technology held in Rome, Italy on June 23, 2008 www.crosettofoundation.org/uploads/424.pdf

[55] Program of the international public scientific Workshop of the 3D-CBS innovative technology held on September 30, 2009 at the Scientific Directorate of the Policlinic San Matteo in Pavia, Italy. www.crosettofoundation.org/uploads/427.pdf.

[56] A copy of the slides presented by Crosetto at the international public scientific Workshop of the 3D-CBS innovative technology held on September 30, 2009 at the Scientific Directorate of the Policlinic San Matteo in Pavia, Italy are available at: www.crosettofoundation.org/uploads/316.pdf.

[57] Questionnaire submitted to the members of the panel at the Workshop in Pavia on September 30, 2009 and at Crosetto's seminar at BNL on September 24, 2009. www.crosettofoundation.org/uploads/418.pdf.

[58] Links to the video recording of the international public scientific Workshop of the 3D-CBS innovative technology held on September 30, 2009 at the Scientific Directorate of the Policlinic San Matteo in Pavia, Italy are available at: www.crosettofoundation.org/uploads/426.pdf.

[59] Program announcement of the International scientific public Workshop held on October 28, 2010 at the Department of Physics of the University of Pavia, Italy. www.crosettofoundation.org/uploads/428.pdf.

[60] Report of SOME of the reasons why Crosetto's innovations were not funded and therefore an entire system could not be built. www.crosettofoundation.org/uploads/411.pdf.

[61] Interview to Christian Joram who states that the Axial-PET is NOT a cancer research project. Yet the next day the Axial-Pet receives the first prize from CERN for the best cancer research project and the Association Madame curie assigns funding to it. Comparison: Axial-PET to 3D-CBS. http://www.youtube.com/watch?v=iqWZ8G0gzbI

[62] A copy of the slides presented by Vigna at the international public scientific Workshop, held on October 28, 2010 at the Department of Physics of the University of Pavia, Italy are available at: www.crosettofoundation.org/uploads/434.pdf.

[63] A copy of the slides presented by Crosetto at the international public scientific Workshop, held on October 28, 2010 at the Department of Physics of the University of Pavia, Italy are available at: www.crosettofoundation.org/uploads/414.pdf

[64] Links to the video recording of the International public scientific Workshop of the comparison between the 3D-CBS innovative technology and the Axial-PET project, held on October 28, 2010 at the Department of Physics of the University of Pavia, Italy www.crosettofoundation.org/uploads/413.pdf

[65] Crosetto, D.: Digital Signal Processing in high energy physics. Lecture before the CERN School of Computing at Yesermonde, Belgium 2-15 September 1990. Publ. by CERN 91-05. 14 May 1991. http://www.crosettofoundation.com/uploads/227.pdf.

[66] Crosetto, D: "Logical Reasoning and Reasonable Answers Consistent with Declared Objectives for the Benefit of Mankind." International Seminars on Planetary emergencies 40th Session, Erice, 19-24 August 2008. Editor: World Scientific 2009, pp. 531-560. www.crosettofoundation.com/uploads/211.pdf

[67] Video recording of Crosetto's seminar on August 23, 2008 at the International Seminars on Planetary emergencies 40th Session, Erice, 19-24 Agosto 2008 (before scientists and decision makers from all over the world, including a Nobel laureate in Physics). www.crosettofoundation.org/uploads/435.pdf.

[68] Crosetto's seminar on May 7, 2008 to post-doc at the University of Texas Southwestern Medical Center of Dallas, TX. www.crosettofoundation.org/uploads/164.pdf.

[69] Crosetto's seminar on January 14, 2008 to post-doc in Physics at the University of Pavia, Italy. www.crosettofoundation.org/uploads/165.pdf

[70] Copy of the slide presentation by Crosetto on April 11, 2007 at the University of Pavia, Italy at the Institute of Human Anatomy. www.crosettofoundation.org/uploads/446.pdf

[71] Video recording of the event held on April 11, 2007 at the University of Pavia, Italy at the Institute of Human Anatomy. www.crosettofoundation.org/uploads/447.pdf

[72] Copy of the slide presentation by Crosetto on April 12, 2007 at the University Campus Bio-Medico in Rome, Italy. www.crosettofoundation.org/uploads/451.pdf

[73] Video recording of the event held on April 12, 2007 at the University Campus Bio-Medico in Rome, Italy. www.crosettofoundation.org/uploads/451.pdf

[74] Video recording of the public Conference-Debate by Crosetto on August 25, 2008 at the Istituto Nazionale Tumori Regina Elena of Rome, Italy. www.crosettofoundation.org/uploads/445.pdf

[75] Video recording of the public Conference-Debate by Crosetto on August 29, 2008 at the Istituto Tumori of Milan, National Cancer Institute. www.crosettofoundation.org/uploads/443.pdf.

[76] Video recording of the public Conference-Debate by Crosetto on September 4, 2008 at the Centro di Riferimento Oncologico, National Cancer Institute, Aviano, Italy. www.crosettofoundation.org/uploads/444.pdf

[77] Video recording of the public Conference-Debate by Crosetto titled: CANCER: DIALOGUE FOR SCIENTIFIC TRUTH TO SAVE LIVES", held on February 26, 2009 at the Province of Cuneo, sponsored by his President Honorable Raffaele Costa, Italy's former Minister of Health. www.crosettofoundation.org/uploads/425.pdf.

[78] Seminar by Crosetto on December 5, 2009 at the Conference "The contribution of Italian researchers in the world." In Houston, TX. www.crosettofoundation.org/uploads/334.pdf.

[79] Letter dated April 10, 2007 from Dario Crosetto to Dr. Elias Zerhouni, Director of National Institutes of Health. www.crosettofoundation.org/uploads/123.pdf.

[80] Link to the video recording of the Press Conference on the "Future of Medical Imaging" held in Washington D.C. on January 31, 2006, when Crosetto asked questions and provided documentation to Zerhouni, Director of NIH. www.crosettofoundation.org/uploads/437.pdf.

[81] Letter with the list of the documentation hand delivered on January 31, 2006 to Zerhouni, Director of NIH at the Press Conference on the "Future of Medical Imaging" held in Washington D.C. www.crosettofoundation.org/uploads/438.pdf.

[82] Crosetto, D.: A modular VME or IBM PC based data acquisition system for multi-modality PET/CT scanners of different sizes and detector types. Presented at the IEEE Nuclear Science Symposium and Medical Imaging Conference, Lyon, France, 2000, IEEE-2000-563, http://www.3d-computing.com/pb/ieee2000-563.pdf or www.crosettofoundation.org/uploads/69.pdf.

[83] Copy of the email correspondence of the review of Crosetto's innovation by IEEE reviewer Les Rogers appointed by senior scientist Aaron Brill. The communication shows how Les Rogers' viewpoint, based initially on preconceived concepts in particle detection changed toward understanding Crosetto's innovation after over one month of email interaction between the two. http://www.3d-computing.com/pb/summary_nss99.pdf.

[84] Photo of Crosetto's first hardware prototype of the 3D-Flow system at the booth of the Industrial Exhibition area of the IEEE-NSS-MIC conference in San Diego (CA). www.crosettofoundation.org/uploads/442.pdf.

[85] Drawings of Crosetto's first hardware prototype of the 3D-Flow system at the booth of the Industrial Exhibition area of the IEEE-NSS-MIC conference in San Diego (CA). www.crosettofoundation.org/uploads/443.pdf.

[86] Crosetto, D.: "3D-Flow DAQ IBM PC board for Photon Detection in PET and PET/CT" IEEE-NSS-MIC-2003. Conference Record. M3-130. http://www.crosettofoundation.com/uploads/105.pdf

[87] 3D-Flow DAQ-DSP IBM PC board for photon detection with sixty-eight 3D-Flow processors. www.crosettofoundation.org/uploads/238.pdf.

[88] Questionnaire filled out by ABO Project inspectors who reviewed the entire project for four days in Dallas, TX during 17 hours of meetings (all video recorded). They approved and witnessed the advantages of the system. www.crosettofoundation.org/uploads/162.pdf.

[89] Proof of concept of Crosetto's inventions http://www.crosettofoundation.com/uploads/309.pdf

[90] See letter from experts from FERMIlab (Head of Computing Division) www.crosettofoundation.org/uploads/440.pdf and from CERN (ECP Division Leader) www.crosettofoundation.org/uploads/179.pdf stating that Crosetto's invention is beneficial to other applications in addition to HEP.