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Biophysicist in Profile



Alberto Diaspro

Falling snowflakes sparked six year-old Alberto Diaspro's interest in science. "I went to the garden with a very small optical microscope and passed my afternoon waiting for snowflake observation" explains Diaspro. Forty years later, microscopy remains Alberto's forte as associate professor in Applied Physics at the University of Genoa and 2009-2011 President-elect of EBSA, the European Biophysical Societies Association.

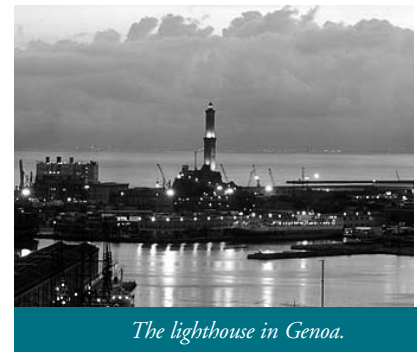
Diaspro was born at home in Genoa, Italy in 1959 to Lorenzo Diaspro and Liliana Arace, a mechanic and a housewife, respectively. Diaspro spent his adolescence living with his retired grandfather, Mario Arace. His grandmother died when he was young, "so we were two singles," jokes Diaspro. It wasn't until the mid-70s, when he met his wife Teresa, that he won the lottery.

"...a good engineer in hardware can always make something good in software, but not vice versa..."

Surprisingly, history and literature were Diaspro's favorite subjects as a child, but curiosity drove him towards microscopy and observation. By high school, he channeled his attention towards physics and mathematics. Fully supportive of his interest in microscopy,

in 1978 his grandfather bought Diaspro an oscilloscope as a gift for beginning his studies at the University of Genoa. Today, during every presentation or talk, Diaspro shows the audience a picture of that oscilloscope. "He was really not very skilled at these types of purchases, so I went to the shop and asked how he was able to buy this kind of microscope. The answer was really very simple; he had gone to the store and asked for the best that they had. And I still use it," exclaims Diaspro.

At the University of Genoa, Diaspro chose to major in electronic engineering instead of physics for an unusual reason: the moog synthesizer. Designed in 1964 by Robert Moog, the synthesizer is considered the first instrument of electronic music and became widely popular in the 1970s, especially with small bands and in discos. "One of my jobs then was designing stroboscopic lights for discos, so I started designing and building this kind



The lighthouse in Genoa.

of instrument, and I sold them. This is one of the reasons I chose electronic engineering," he explains. Diaspro was working towards a specialization in software until Alessandro Chiabrera, who was bringing biophysics into electronic engineering courses, convinced him to switch to hardware. "His key sentence was, 'a good engineer in hardware can always make something good in software, but not vice versa,'" Diaspro remembers.

Diaspro met Bruno Bianco and Francesco Beltrame his last year at the

University of Genoa when he was working in their lab on his thesis. They introduced him to the field of phase contrast microscopy and digital holography. Immensely interested in solving problems related to the observation of transparent objects in cells, Diaspro decided to do his

paper in *Nature* by David Agard and John Sedat, on three-dimensional optical imaging of cells. “This paper was very influential, one of the papers that I say moved my course of study,” he states emphatically.

For the next three years Diaspro worked for a software company—at

on the Society website, which he uses to fill this gap.

Diaspro migrated to the department of physics in 1995 and resumed research with atomic force microscopy, but subsequently decided to switch to confocal and multiphoton microscopy. “I switched in the sense that I started with optical, then I moved to atomic, and again to optical,” explains Diaspro. “Then fellow biophysicist Caesar Usai said, ‘Why don’t you set up a multiphoton microscope?’ And I said, why not?”

As a result of that conversation, Diaspro delved into what is now called multiphoton microscopy. In

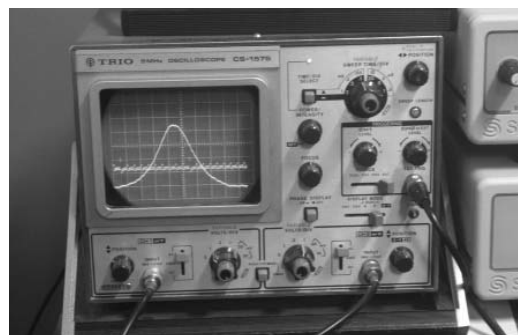
“His group has become perhaps the strongest group in microscopy in Italy,” says Gratton

thesis in biophysics instead of the classical electronic engineering he had been studying. In 1982, with Bianco and Beltrame as thesis advisors, he began working on the visualization of chromatin in cells using non-perturbative methods, a topic he continues to research. He received his Laurea degree (a five-year system no longer used in Italy) in electronic engineering with a thesis in biophysics. “A strange combination at the time,” notes Diaspro.

Since no PhD programs in biophysics were offered at the University of Genoa in the early 80s, Diaspro continued to research and study microscopy, matriculating into the Antonio Borsellino School of Biophysics. Here he met two researchers who cemented his interest in biophysics. “Ignacio Tinoco and Carlos Bustamante really drove my attention to biophysics in a professional, serious way. Meeting with them, talking with them, interacting with them, really inspired me. I never worked with them, but I still keep in contact with both of them,” Diaspro reflects.

In 1984, while researching the changing structure of chromatin using phase contrast microscopy, Diaspro became interested in three-dimensional optical after reading a

least during the day—in Genoa, the city that is so central to Diaspro’s life. At night, you could find him in Bianco’s and Beltrame’s lab studying chromatin. When an offer emerged to start a biophysics laboratory in the School of Medicine at the University of Genoa, he accepted. “I decided with my wife to accept even though we already had a daughter and the university was offering significantly less than my salary at the company,” states Diaspro. Diaspro moved to Spain for a period in the late 80s to work with atomic force and scanning force microscopy, but returned to Italy, when he secured a contract professorship teaching biophysics and conducting research at University of Genoa’s School of Medicine.



The oscilloscope given to Diaspro as a gift from his grandfather for beginning college. Diaspro still uses it to this day.

1999 he visited Enrico Gratton’s laboratory in Urbana-Champaign, Illinois, to learn about the design of a two-photon microscope. Gratton heavily influenced his interest in non linear fluorescence microscopy, and Diaspro credits him as one of the most important people in his career.

“I’d like to be a singer like Neil Young, Bob Dylan, or James Taylor—a folk singer”

“I enjoy teaching, and I really learn a lot. What I really think is missing is comprehensive textbooks in biophysics.” Diaspro is pleased with the efforts of the Biophysical Society to collect and post articles related to the teaching of biophysics

“Enrico is one of the greatest biophysicists, in my opinion. When you have a question, you get an answer. And if you don’t understand and you ask him again he will give you the answer, again, and again and again; he never gives up on giving

(Board & Council continued from Page 1)

- Council approved the agreement to enter into a partnership with Cell Press to publish *Biophysical Journal*, effective January 2009.
- Council elected two of its members to the Executive Board. *David Dawson* and *Lynne Regan* will each serve two-year terms. They replace outgoing members *Rajini Rao* and *Suzanne Scarlata*.
- Four Society members were elected to the Nominating Committee. *Paul Axelsen*, *Michael Cabalan*, *Catherine Royer*, and *Marileen Dogterom* are charged with preparing the slate of 2009 candidates to be presented to Council when it meets in Boston. *Paul Axelsen* was elected Nominating Committee Chair. Also serving on the Committee is the Past-President, *Joseph Falke*.
- Council approved increasing the size of the Awards Committee by two members. *Mary Barkley* and *Anita Zimmerman* were appointed to fill the new positions. Each will serve for a renewable three-year term.
- The proposed 2008 Discussions Meeting topic and organizing Committee were approved (see related article, page 18).
- Council approved a slate of candidates for the 2008 elections. The full slate will appear in the May/June newsletter.
- The Board and Council approved the formation of a new Programs Committee for an initial period of three years. The Committee is charged with evaluating new and ongoing Society programs.

Profile (Continued from page 3.)

you explanations and is very sharp and passionate,” Diaspro says.

With previous experience in three-dimensional optical sectioning and confocal microscopy, Diaspro obtained a grant from the National Institute of Physics of Matter (INFM) to develop two-photon architecture in Gratton’s lab. “He (Diaspro) is a great organizer. It is amazing how many things he is capable of doing. He is very active in the Italian and international community. His group has become perhaps the strongest group in microscopy in Italy,” says Gratton, now professor of Biomedical Engineering and Physics at the University of California, Irvine.

These days, Diaspro is focused on the nanoscale approach, fluorescence imaging, and single molecule imaging, topics he has presented at the Biophysical Society annual meetings.

Diaspro first learned about the Biophysical Society in 1985 through the Italian Society of Pure and Applied Biophysics (SIBPA), and for the last five years has been an active member serving on the *Biophysical Journal* Editorial Board. Along with reading the *Biophysical Journal* and attending the Annual Meeting, Diaspro feels that developing close relationships with other members has played an important role in broadening his knowledge of biophysics. He sees the Biophysical Society as a family of

sorts. “Being a member is valuable; for me it’s more than colleagues, you have colleagues who are not members. But when you are members and are at the meeting or reading the Journal, there is a sense of family. There are so many people I love at the Biophysical Society.” Diaspro proclaims.

As 2009-2011 President-elect for of EBSA, Diaspro has ideological goals. “The idea is for EBSA to be a real European Biophysical Society, different from the “American” Biophysical Society, so that we know what European views are,” he states.

When he isn’t peering into microscopes, Diaspro enjoys cooking with his wife and 23-year-old daughter

Claudia. Even while cooking, the desire to understand drives him. Every year in Genoa there is a festival of science where he performs “molecular cooking,” explaining the science behind cooking to audiences. When asked what he would be if he weren’t a scientist, the answer is not a chef,

though. “I’d like to be a singer like Neil Young, Bob Dylan, or James Taylor—a folk singer,” Diaspro says. He plays the guitar and writes songs in his spare time. He states that all he needs to perform are “my guitar, and my wife, my daughter Claudia and friends; these are the only people who listen to me.” And of course, his lovely dog Sissi.



Diaspro in his lab