

SPOTLIGHT ON “HIDDEN PHYSICISTS”

JAMES N. CARON, PhD, RESEARCH SUPPORT INSTRUMENTS, MD

“I received my BS in physics from Michigan State University in 1990, and at first was not interested in pursuing an advanced degree. The job market at the time, however, forced me to rethink this. While working towards a Masters and PhD at the University of Delaware, I performed research in laser-based ultrasound. The concept uses lasers to generate and detect ultrasound waveforms in materials for quality and defect inspection. This gave me experience in optics, acoustics, electronics and composite materials. The research also produced a US patent (6,041,020) for a concept I discovered where acoustic fields in air can be sensed using optical beam deflection.

“After graduation, and several months of post-graduate work, I accepted a position as a contract scientist at Research Support Instruments (RSI) in Maryland. For the past five years, I have performed research at the Naval Research Laboratory

on a new concept for space-based imaging. During this time, I discovered a new method for removing blur from images that has produced several published papers, has been featured in *LaserFocus World* and *Advanced Imaging Magazine* (Application of the Year Award, 2004), and is currently being considered for a US patent. The method requires no information about either the type of blur or the imaging system.

“In 2002, I started my own company, Quarktet, to market and license the two distinct technologies. “I have included an example of the capability of the de-blurring technique. The image below shows part of a large sunspot recorded on 15 July 2002 with the Swedish 1-meter Solar Telescope on La Palma. This image was post-processed using a phase-diversity technique providing the highest resolution of the sun ever recorded. I was able to increase the resolution by removing the blur from the image.”

ROBERT STEELE, TEXAS HONING, INC., TX

“Treat people the way you wish to be treated,” is Robert Steele’s motto, Sigma Pi Sigma member from Sam Houston State University. Such a life-summing statement well describes this dedicated ‘hidden physicist’ who has accomplished much through his love for physics and people.

Through an accelerated program, Robert managed to receive two degrees in 1980, one in physics from Sam Houston and the second in mechanical engineering from Texas A&M University. After graduation, he sought work in a service manufacturing company, Texas Honing, Inc., that provided honing design and manufacturing for precision tubular products. By 1995 he had become CEO of the company and within the next ten years had quadrupled sales and increased his workforce from 50 employees to 115. These impressive results in a competitive, cyclical market such as the oil industry reveal a nimbleness of mind and

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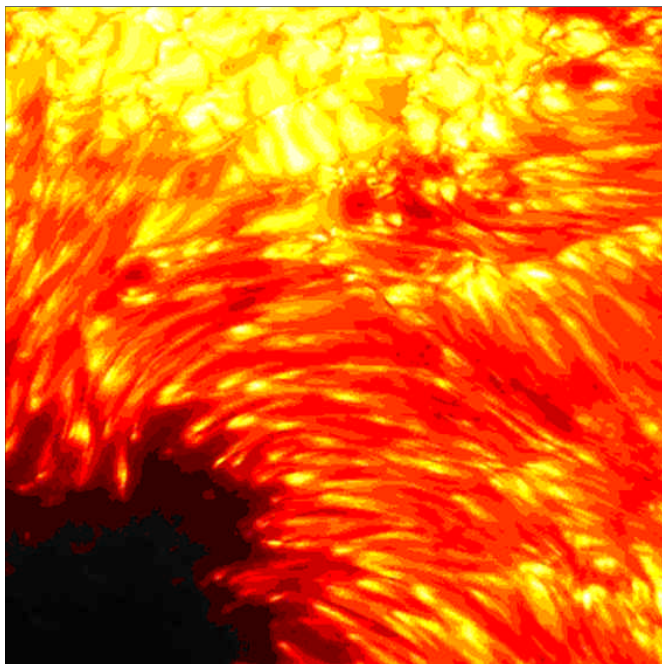


Figure 1: This is a section of a high-resolution image of the sun and is displayed here in false color representation. The highest values are displayed in white, followed by yellow and red. The lowest values are in black. This image shows part of a large sunspot recorded on 15 July, 2002, with the Swedish 1-meter Solar Telescope on La Palma. This image was post-processed using a phase-diversity technique providing the highest resolution of the sun ever recorded.

Image courtesy of the Royal Swedish Academy of Sciences

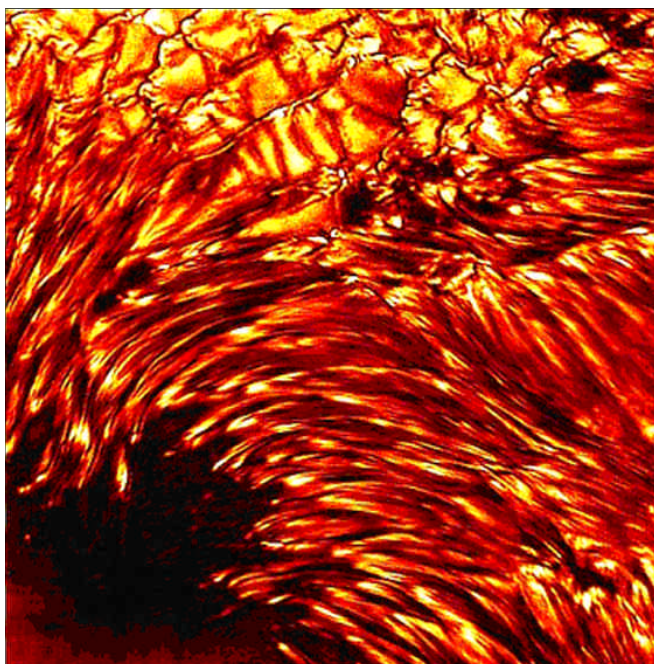


Figure 2: The restored image is displayed using the same false color scale. Application of ‘SeDDaRA’ removes even more blur from the image, and thus increasing the resolution.

Image courtesy of the Royal Swedish Academy of Sciences

highly tuned ability to forecast future trends and needs.

As a businessperson, Robert appreciates his training in physics. His understanding of physics has enabled him to easily envision the tool design and manufacturing process. He credits his training as a physicist with enabling him to see at one time the outcomes of several decisions that factor in many variables. It also helps him clearly see the assumptions needed for each possible outcome. Such reasoning helps him arrive at profitable decisions quickly. "Having a plain degree without physics is like having a row boat without oars," said Robert at a recent interview.

Robert elaborated on other traits that have enabled him to succeed. At the top of the list is having a sound understanding of people. "I must be able to pick the right person to do a certain job, and often times my decisions are based on what I observe," noted Robert. "Others may not be able to immediately see the qualities that would make this person right for the job and some-

times I've had to justify my decisions. Every personnel selection has turned out to be as I predicted."

Another characteristic that he learned in physics is to pay attention to results. "I have often seen others continue to make bad decisions because they haven't seen the impact resulting from their actions," Robert said. "It is easy to make a wrong assumption; those who succeed are the ones able to spot the error and correct it quickly."

Robert Steele, father of two college aged sons and one daughter in high school, looked back to a significant moment in his life—when he was in third grade and heard that Robert Kennedy was shot. "That made a powerful impact on me that I still remember to this day," states Robert.

"If there was one thing I could think of that would help undergraduates," commented Robert, "it would be a scholarship for the 'lost student,' the middle of the road over-achiever. A scholarship with conditions and requirements on performance, since one would be surprised what can be achieved by

an ordinary student." Robert, who graduated magna cum laude, appreciates the need to help undergraduate students excel.



"Hidden Physicists"

One of Sigma Pi Sigma's greatest assets is its diversity. Stemming from a common interest in and aptitude for physics, our members have gone on to pursue a multitude of interesting and unusual career paths. Now, more than ever, we seek to draw on the wisdom and experience of our alumni.

With help from the American Institute of Physics, Sigma Pi Sigma is attempting to locate the names and whereabouts of people with BS, MS, or PhD degrees in physics whose careers have taken them away from the "traditional" physics community. We ask for your help in finding the universe of people who are trained in physics—what they do and where they are.

As the physics community faces new challenges and opportunities, we would like to engage these "hidden physicists" in the fellowship of physicists. Therefore, if you work outside the traditional physics community, please provide us with the following information. Also, if you know of others in similar situations, please encourage them to contact us. Several responses will be selected for publication in each issue of Radiations.

Material for publication must be received by February 15 for the spring issue and by August 15 for the fall issue. ◆

Name _____ Position _____

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Comments _____

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