

## Director's Matters

By H. Frederick Dylla, Executive Director

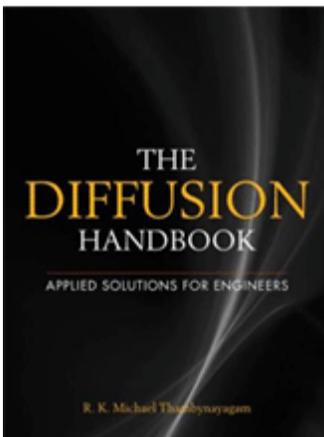


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### A work of a lifetime

This time of year the American audience can tune in to several highly promoted annual award events for popular culture. Oscars recognize the "best" in motion pictures, and Grammys, the "best" in recorded music. Albeit with less fanfare, the annual PROSE Awards acknowledge the best in scholarly publishing of books, journals, and electronic media. Didn't notice that award ceremony, you say? Let me share one remarkable example to convince you that paying attention to these notable works and their talented authors is worth your time.

For the last 36 years, [PROSE awards](#) have been given annually for published works in academic fields spanning the sciences, engineering, and the humanities. Individual awards are chosen for every academic discipline, and one book is chosen as the overall winner with the bestowal of the prestigious [R.R. Hawkins Award](#). Authors and publishers value PROSE awards because they help promote wider readership.



In 2011, over 500 works were submitted from more than 60 scholarly publishers. McGraw-Hill Professional snagged top honors for *The Diffusion Handbook: Applied Solutions for Engineers*, written by a remarkable gentleman who dedicated his entire career to develop a comprehensive reference for technical endeavors based on the diffusion equation. Michael Thambayagam's work is extraordinary, despite the fact that few scholars would probably ever buy the book, and it would be highly unlikely that such a book would ever be written or published again. For a modest \$199, anyone can purchase a copy of this 2048-page tome. Though not for your home library, the book will become an invaluable component of every institutional and research center library.

When the title of this book was announced during the 2011 PROSE awards ceremony, the initial reaction was to wonder how such an esoteric sounding book could win a major award. After McGraw Hill's Senior Editor Michael Penn described the story of how this book came to be, and after the audience had the privilege of hearing from the author, it was obvious to all present that we were once-in-a-lifetime witnesses to such a crowning achievement.

Thambayagam spent his entire professional career as an engineer working for Schlumberger, a company that provides specialized equipment and services to the oil and gas industry. With permission

from his employer, Thambynayagam began research and the writing of a comprehensive reference book on the applications of a very important equation for science and engineering—the diffusion equation. For example, this relatively simple equation can be applied to the motion of atoms and molecules across a boundary or to heat flow through a material. Applications extend to almost every technical endeavor from the practical to the purely academic—from the extraction of oil from rock strata, to the safe design of a large structure such a suspension bridge, to how long it takes to notice that someone has opened a jar of fresh peanut butter at the other side of a room.

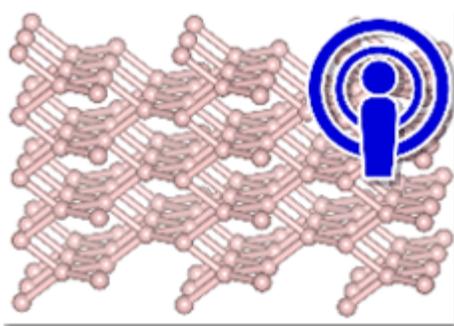
Thambynayagam's book contains solutions to the diffusion equation for more than 1,000 separate applications. He had the perseverance to work through every single problem and develop a methodology to describe and display the setup and solution for each case, while exhibiting the personal fortitude to stick with this laborious task for essentially his entire working career. It is also remarkable that both his employer and his publisher fully sanctioned, supported, and maintained their support for Thambynayagam's book throughout its decade-long gestation period. Such dedication to an academic project is unique in the context of our web-based world of communications where our psyches are constantly inundated with increasingly more information, leaving less time for concentration on any one topic.

I thank the Association of American Publishers for recognizing an exceptional engineer for his invaluable contributions to science and technology.

## Publishing Matters

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*JCP* puts spotlight on Nobel Laureate Roald Hoffmann



This week, *The Journal of Chemical Physics'* (JCP) Spotlight Collections is putting the spotlight on Nobel Laureate Roald Hoffmann, Cornell University's Frank H.T. Rhodes Professor in Humane Letters and professor emeritus of chemistry. The focus is on Hoffmann's recent work on hydrogen, the lightest and most abundant element in the universe. Although normally a gas, hydrogen's properties change under extreme pressure, and it can act like a metal. Under these conditions, the system becomes "the

subject of intense experimental research and an important problem" for physicists and chemists to solve, says Hoffmann. The features of this so-called dense hydrogen were the subject of a series of four papers, recently published in *The Journal of Chemical Physics*, that were written by Hoffmann and his Cornell colleagues, including chemist Vanessa Labet and physicist Neil Ashcroft. You can read more about the work and listen to Hoffmann and his colleagues reflect on their studies in a podcast on [the JCP Spotlight Collections website](#).

## Physics Resources Matters

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SRC contributes to international gender and science assessment

WIGSAT (an organization that promotes

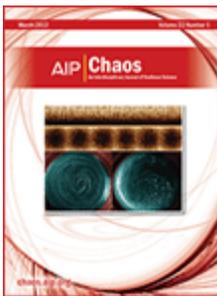


women's global involvement in innovation, science, and technology) and the Organization for Women in Science for the

Developing World contracted with the Statistical Research Center (SRC) to prepare a report on US policies that might be influencing American women's participation in science and technology. The report includes data on the rate at which women participate in various science and technology (S&T) arenas. Researchers from Brazil, India, Indonesia, South Africa, South Korea, and the European Union were also asked to provide data on policies and statistics from their areas. WIGSAT will assemble the data in order to make comparisons across regions.

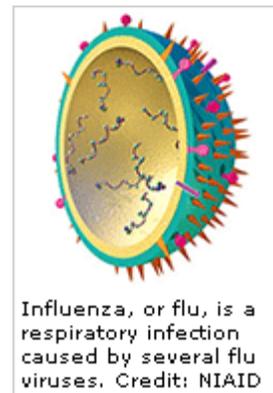
The purpose of the study is to compare how policies affect women's participation in innovation, science, and technology globally. WIGSAT contacted the SRC because of Dr. Rachel Ivie's expertise on topics concerning women in science. Ivie worked with SRC staff member Arnell Ephraim, who has a master's degree in public policy analysis, to collect the data and write the report for this project. Once data are received from all participating countries, analysis may reveal the most effective strategies for increasing the number of women in S&T fields. We hope to share findings from the study with the physics community once the results are available.

*Inside Science* reports on disease epidemics insights from the AIP journal *Chaos*



A story posted by AIP's [Inside Science News Service](#) (ISNS) last Thursday featured research from the AIP journal *Chaos*. "[To Stop Epidemics, Acting Locally More Important than Globally](#)" explained how a team of Australian and Chinese researchers used the mathematics of modeling networks to study the spread of disease. The researchers found steps taken in response to local knowledge of a disease, such as

avoiding specific places or people, are more effective at halting the spread of epidemics than general steps taken in response to global information learned, for example, by listening to mass media. The ISNS story was written by Pulitzer Prize-winning freelance contributor Joel Shurkin and was picked up by a number of outside news outlets, including [MedicalXpress](#) and [PhysicsCentral](#). The ISNS news editors got the story idea from the "Interesting Papers" service provided by the AIP Journal Publishing office.



## Coming Up

February 27 – March 2

- APS March Meeting (Boston, MA)

Associated AIP Events:

February 25 – *Journal of Chemical Physics* editors meeting

February 26 – AIP Journal Editors Spring Conference

February 27 – *Journal of Chemical Physics* Editorial Advisory Board dinner meeting

- SPS-sponsored oral sessions for undergraduate research
- Presentations of the Dannie Heineman Prize for Mathematical Physics and the Industrial Applications of Physics Prize (during the APS awards ceremony)

February 28 – *AIP Advances* Editorial Board meeting

- SPS-sponsored oral and poster sessions for undergraduate research
- SPS award presentations (during the APS student awards and networking reception)
- AIP/APS Meet-the-Editors reception

February 29 – *RSI* Board luncheon and meeting

- *AIP Advances* birthday celebration

March 9–10

- PRC Advisory Committee and Policy Committee Meetings (College Park, MD)