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Building IceCube, A Neutrino Telescope at the South Pole

Date/Time: Thursday, May 18, 2006, 11:45 AM - 1:00 PM
Speaker: Jeff Cherwinka, IceCube - EHWD
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks (cost \$10.00, free for student members)
RSVP: by May 15th to Les Schroeder via e-mail (l.schroeder@ieee.org) or call 608.444.9144

Non-member guests are always welcome!

IceCube is the largest neutrino telescope in the world after two seasons of construction at the South Pole. This talk will present a brief introduction to what neutrinos are, what they might tell us about the universe, and how IceCube is designed to gather this information. The construction of IceCube requires drilling 2.5 km deep holes in the ice at the South Pole to allow installation of sophisticated light detection equipment in the deep clear ice. Some of the details and challenges of the logistics, drilling, and instrument deployment will also be discussed. More information about the IceCube project can be found online at <<http://icecube.wisc.edu/>>.



IEEE Region 4 – Expanding Teacher In-Service Program Participation



As an engineer, are you interested in working with your local pre-university schools, school districts or teachers? Do you want to help improve the level of technological literacy of teachers and their students in your community? Then you should attend IEEE's upcoming Teacher In-Service Program (TISP) Training Workshop in Indianapolis on 16 - 17 June!

Started in 2001, TISP features IEEE volunteers developing and presenting technologically oriented subject matter to educators in a professional development (or "in-service") setting. In the last four years, IEEE volunteers have made more than 35 presentations to over 675 pre-university educators within the United States and South Africa – these educators reach more than 70,000 students.

Now you can be a TISP champion! The IEEE Educational Activities Department and the Central Indiana IEEE Section are hosting a TISP Training Workshop for Region 4 volunteers on 16-17 June at University Place Conference Center and Hotel in Indianapolis, IN.

The workshop will cover how to organize volunteers for TISP and how to bring the program to your local school districts. Thanks to the support of IEEE USA the event is free for all IEEE members. There will be a \$75 fee for non-IEEE members. IEEE will reimburse members for any training-related travel costs incurred. Funding is also available to cover the cost for supplies and materials needed for presentations to educators.

To register for the workshop visit <http://www.ieee.org/web/education/preuniversity/tispindy.html>.

The event will begin on Friday 16 June at 4:30 PM with a 2 hour presentation followed by dinner at 7:00 PM.

On Saturday 17 June the event will run from 9:00 AM to 3:00 PM and will include hands-on presentations, a question and answer period, and discussion on numerous topics, such as: program background and scope, getting started, potential costs to sections and educators, suggestions on making contact with your local pre-university community, and the alignment of an activity with education standards.



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- **Safety Code Compliance for Outside Plant Communications Facilities**
May 16–18, 2006 in Madison, WI
- **The Engineer in Transition to Management**
June 5–7, 2006 in Madison, WI
- **Software Project Management**
June 7–8, 2006 in Madison, WI
- **Introduction to Right-of-Way for Utility Engineers, Technicians and Managers**
June 15–16, 2006 in Madison, WI
- **Introduction to Data Communications**
June 19–21, 2006 in Madison, WI

For further information...

Web: <http://epd.engr.wisc.edu> or E-mail: danbeck@engr.wisc.edu
College of Engineering Department of Engineering Professional Development

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Breakfast and Lunch will be provided for attendees.

The goal of the training session is to impact at least 1000 pre-university educators in Region 4 through this program and to help IEEE volunteers implement TISP in their local pre-university education communities.

During an actual Teacher In-Service Presentation, IEEE volunteers provide teachers with activity materials and then help the teachers as they work their way through the activity. By helping the teachers as they work their way through a technical activity, the teachers get to the point where they feel comfortable enough to present it on their own. The idea is for the teachers to return to their schools and lead the same activity in their classrooms.

For more information on the upcoming TISP training session or TISP participation, please contact: Doug Gorham, Director of Educational Outreach, +1 732 562 5483, d.g.gorham@ieee.org, or Allison Ickowicz, Associate Project Coordinator, +1 732 562 5496, a.m.ickowicz@ieee.org.

Picking a Good Boss

By Donald Christiansen

Most experienced engineers agree that having a good boss is one of the most important aspects of one's job. Your boss can serve not only as a professional colleague, mentor and leader, but often as a shield from the whims of an oppressive bureaucracy.

But how to find a good boss? The odds seem in your favor at a company known by its employees as a good place to work. The likelihood is enhanced if its culture (policies and practices) appeals to you personally.

Over the past few decades, several lists of "100 Best Companies to Work For" have been published. Compiled by a team of business journalists and researchers in 1983, one version included 17 high-tech companies, among them Intel, IBM, General Electric, Hewlett-Packard and Apple Computer. This year, using similar but not identical criteria, Fortune magazine's list included only one of the aforementioned 17 — Intel. Five not on the 1983 list were Qualcomm, Cisco Systems, Microsoft, National Instruments, and Texas Instruments. Among the pluses cited by Fortune for the best-to-work-for companies were these: generous fringes (Microsoft); never a layoff (National Instruments); stock for new employees (Qualcomm); and a friendly confrontational culture (Intel).

But these lists must be taken with a grain of salt. In fairness, it should be noted that the surveys and interviews undertaken to compile the Fortune lists include a random selection of employees, not just engineers, and that the companies' cooperation is needed to complete the exhaustive rating process (e.g., Apple declined to participate).

The most successful companies are not necessarily those rated the best to work for. In 2005, General Electric, IBM, Hewlett-Packard, Motorola, Verizon, Dell, Bell South, Intel, Cisco Systems, and Microsoft were among Fortune's top 100 in revenues, but of those only Intel, Cisco, and Microsoft made the current Fortune best-to-work-for list. And if best-to-work-for and most-successful lists are insufficient, there is still a third — Fortune's "most admired." For this list, a jury of corporate directors, top executives, and financial analysts invoke a different measure for rating companies. For example, in Fortune's 2006 ratings, against criteria that included investment value and financial

soundness, this “jury of peers” put General Electric first. Also among the top 20 were Dell, Microsoft, Apple and IBM.

Big Bosses

When corporate CEOs are more than figureheads, their styles of leadership can permeate the entire organization, and lower-level management and staff may react well or badly to the omnipresent hand of the top dog. Several companies founded by engineers became noted for their collegial work environment and enlightened corporate cultures.

- Founders Bill Hewlett and Dave Packard set the tone for the Hewlett-Packard (HP) culture that lasted throughout their tenure as active heads of the company. A survey of more than 7,900 HP employees in 1979 showed such high regard for the company that the management survey group placed HP in the top 0.5 percent of 1,000 companies surveyed.
- Founded by engineer Howard Vollum, Tektronix followed the HP style of management closely. From visits to Tek, I recall the low-walled, carpetless spaces of its department heads that made for quick and easy communication with all employees, who were on a first-name basis with their bosses.

On the other hand, a new CEO arriving on the scene can sometimes send shockwaves through the management pattern of an established organization.

- Upon succeeding Reginald Jones as CEO of General Electric, Jack Welch radically changed the conservative nature of the company, disrupting the ingrained management style of many GE veterans. Among Welch’s reforms was the requirement that GE business leaders earmark 10 percent of their managers as poor performers during the annual evaluation process. Those so designated got no raise and “generally had to go,” according to Welch. They knew who they were, and that they had better shape up or ship out. But executives who had built a management team with which they were completely satisfied rebelled. Some would even list managers about to retire, or, in one case, a manager who had died. Welch made it clear that executives who failed to comply would find themselves on the bottom rung. In his memoir, *Jack: Straight from the Gut*, Welch boasted that finding or creating GE managers in his own aggressive leadership image vastly improved GE’s bottom line.

Hot Projects

At the top of the list of important job characteristics, engineers put the technical sophistication of the project to which they are assigned. But those chosen to take part in a challenging project may not always find the boss to be the most personable leader. Nevertheless, a leader’s idiosyncrasies may be outweighed by the excitement and, perhaps, the glory of working on the project. In *Organizing Genius*, Warren Bennis gives the following examples.

- Famed as the inspirational leader of the Apple Macintosh computer project, Steve Jobs was noted for his arrogant and acerbic “walking around” management style, in which he would often blindside technical staff members with scathing comments about something they were developing, but about which he himself often had no relevant expertise.
- Xerox PARC’s Bob Taylor was able to shield PARC staff from the conventional thinking of the Xerox bureaucracy. Yet, according to

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one of his staff members (as reported by Bennis), Taylor rated most of those he dealt with on a “binary scale” — as either “the greatest thing that walked the earth” or “beneath consideration,” to put it kindly.

- Clarence Kelly Johnson, who headed Lockheed’s Advanced Development Projects (the famous “Skunk Works”), was an eminent aeronautical engineer noted for his bullying stubbornness and hair-trigger temper. His successor, Ben Rich (selected by Johnson), called him the toughest boss west of the Mississippi. Johnson nevertheless was respected and admired for his aeronautical genius. (Rich did not continue Johnson’s practice of calling all the shots, telling the Skunk Works team “I’ll be decisive in telling you what I want, then step out of the way and let you do it.”)
- Tom West was aloof and uncommunicative with the talented members of his Eagle computer (*Soul of a New Machine*) development team, but he fought Data General’s upper management to get them the resources they needed.

No Silver Bullet

In the end, although you may carefully study a company’s culture and the nature of its products and projects, a good deal of luck is involved in selecting a good boss.

My advice is this: If you happen to pick a boss you don’t like, don’t blame it on him (or her). Move on. Find a new boss.

Unless, of course, you elect to become subversive, instigate a cabal, enjoy sleepless nights, upset your intestinal tract, and aggravate your family—and possibly become president of the company.

Resources

For more on "good" companies, projects, and bosses:

R. Levering, M. Moskowitz, and M. Katz, *The 100 Best Companies to Work for in America*, Addison-Wesley, 1984.

"The 100 Best Companies to Work For: 2006," *Fortune* magazine, 23 January 2006.

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B. Rich and L. Janos, *Skunk Works*, Little, Brown, 1994.

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Morrow, 2002.

R. Slater, *Microsoft Rebooted*, Portfolio, 2004.

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D. Packard, *The HP Way*, Harper Collins, 1995.

"America's Most Admired Companies," *Fortune* magazine, 6 March 2006.



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