

do, in the brief section 9.4, describe localization as an interference between time-reversed paths. The absence of a diagram to illustrate the point led me to overlook their written description and to claim that they had not covered that aspect of electron localization.

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A Physicist in Industry: One Reader's Experience

Marc D. Levinson's letter (PHYSICS TODAY, June 2003, page 15) about the fate of physicists in industry is entirely too pessimistic. First, most physicists must expect to be employed in industry; academia and government do not have enough positions for physicists. What industry requires is the ability to solve problems, particularly when the solution requires making an invention. The gadget invented must also be delivered on time and within budget.

Once, I was presented with a problem outside my area of expertise; the device was essentially already designed, but I had to invent the method of construction. Admittedly, the device only lasted a couple of months, but long enough to prove the principle of the entire system. And it was delivered inexpensively and within a couple of weeks, soon enough that the project won the system contract for my company.

Another time, an overly imaginative engineer envisioned a fantastic new device and set a date for a news conference only three weeks hence. Since his configuration would have failed because of the second law of thermodynamics, I invented a modification, oversaw its construction, and delivered it in time for an operational demonstration at the news conference.

Invention—of ideas, gadgets, methods, even engineering computer programs—is the key to success. I must have made at least 60 inventions. Twenty-five made it into US patents; the others were obviously good because, unknown to me, other people had already thought of them.

All of this sounds like engineering, but a physicist brings a broader, cross-disciplinary knowledge for solving the more complicated problems.

Industry also expects physicists to develop their own budgets—by selling their expertise and that of

their labs to both internal project managers and external organizations willing to subsidize applied research. Yes, an industrial physicist must be a salesperson, at least for his or her own product, whether it be a gadget, an analysis, or a consultation.

Recently, most of my products have been specialized engineering computer programs that gave managers the answers they needed.

Furthermore, keeping up to date is important to maintaining one's value to the company. Twenty-five years after I got my doctorate, I started taking one graduate course

each year for 11 years. By avid reading of the literature, I already knew half of the material, so I excelled. But 50% of the material was absolutely new to me! I did need retooling. So, when I was 70 years old, I had not only survived five 10% downsizings, but I received a raise and a promotion.

True, industry does not award tenure. Who needs it? Certainly not a physicist who is capable, inventive, productive, and self-confident. And yes, I enjoy reading "Dilbert," too.

Arthur S. Jensen
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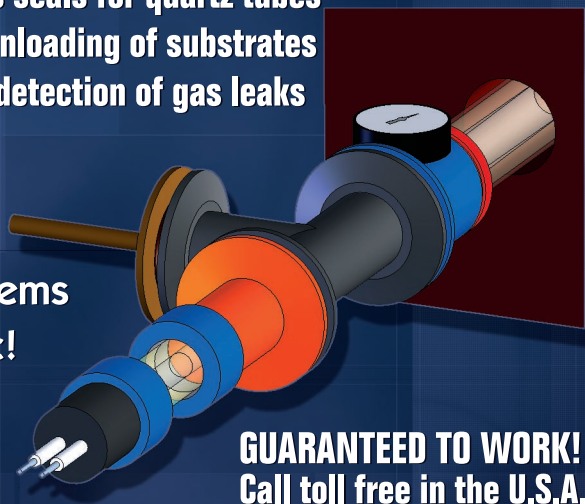
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