

# THE INDUSTRIAL PHYSICIST

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## EDITORIAL

# Hungry for new ideas

My friend Jeff and I were laid off at the same time. The company we had joined just a few months earlier was being restructured. We hardly ever saw the new CEO, who spent most of his time in the corner office. After six months, he emerged and terminated 6% of the workforce. New hires such as Jeff and myself were easy casualties.

Jeff turned full time to writing mystery novels, which he had been doing part time, and I went on to join the American Institute of Physics. Jeff worked long hours at his home computer, did his own promotion, and within a few years, managed to sell a book to HBO for a handsome six-figure sum. Its screen adaptation played on nationwide TV at 9 pm Saturday, January 18th. He sold his next book to Universal Studios, for an even larger figure. Now Jeff tells me that one of Hollywood's top ten actors is negotiating with him for his latest film script. This brought home to me the enormous hunger of the film industry for new ideas, and made me realize that industry is equally ravenous. Look at research and development in lasers.

When I was at Monash University in Australia back in the early sixties, one of my fellow research students was invited to speak in Paris about his work on lasers. We graduate students were very excited for our friend but could hardly imagine what made him so important. Now, thirty years later, laser scanners tally my groceries at the checkout counter and read my CDs.

Twenty years ago, some researchers came

up with the idea for a free-electron laser (FEL), using beams of unbound electrons, instead of electrons bound to atoms or molecules, to generate tunable, coherent, high-power radiation. Now we see a consortium of industrial companies getting ready to commercialize the FEL (*see story p. 18*) for applications in metallurgy, aerospace, polymer processing, microprocessing, and micro-machining.

While we were preparing our FEL article for press, researchers at MIT announced the development of the atom laser, where atoms, rather than photons of light, form a coherent beam in a single quantum state. Although the atom laser is at a rudimentary stage, it may have remarkable applications, including being able to deposit atoms onto surfaces with unprecedented precision in the creation of nanostructures.

Look at some of the other stories in this issue: "Superconductor products poised for market" (p. 7) and "Solving real-world problems virtually" (p. 12). It is not so long ago that these subjects were barely more than excited babble at exotic conferences.

Industry is hungry for new ideas and for people to implement them. Physicists are in demand for both roles: they are visionaries and have the "know why" to supply the ideas; through their education and training they acquire the "know-how" to become practical magicians and put these ideas into practice.

Ken McNaughton  
Associate Publisher

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