

CONVERSATIONS

LASER Hall-of-Famer

There's no question that **C. Kumar N. Patel**, president and CEO of Pranalytica Inc., a California-based manufacturer of leading-edge laser systems, is a change agent in laser technology. After all, he did invent the carbon dioxide, carbon monoxide and Spin-Flip Raman lasers. The recent U.S. National Inventors Hall of Fame inductee will deliver a plenary talk at the Conference on Lasers and Electro-Optics (CLEO: 2013), 9-14 June in San Jose, Calif. (U.S.A.).

Q. When you invented the CO₂ laser, did you have any inkling of its applications?

I knew it would be important in the medical, industrial, scientific and military fields. But I was surprised by how quickly the output powers were scaled up from 100 W to tens of kilowatts and how suddenly it became an indispensable tool in many industries. It was as if everyone had been waiting for it to appear.

Q. What's the proudest moment of your career?

Being awarded the U.S. National Medal of Science by President Clinton in 1996. The most exciting moment was creating the first carbon dioxide laser to produce more than 10 W of power late one night at Bell Labs.

Q. What infrared applications will you discuss at CLEO: 2013?

I'll talk about the use of quantum cascade lasers to protect aircraft from shoulder-fired missiles; to detect traces of industrial pollutants and chemical warfare agents; to find improvised explosive devices from safe distances; and to detect CO₂ and other gases as quality indicators for various products.

Q. What will be the take-away message of your talk?

Today's quantum cascade lasers are where carbon dioxide lasers were in 1966—their potential applications are limited only by our imagination. [OPN](#)

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