

## Laid back at light speed

*WORLD CLASS NEW ZEALAND Bill Buckley CNZM*

*Manufacturing, Design & Innovation -- sponsored by Douglas Pharmaceuticals*

Bill Buckley's imprint is somewhere inside almost every computer, smartphone and digital appliance you own. He is the sole owner of Buckley Systems - the maker of the electromagnets used to create around 90 percent of the world's silicon chips, which drive virtually every piece of electronic technology on earth.

Now turning 70, he dominates the global market for precision electromagnets. These are used not just to implant the ions that make silicon chips work, but to treat cancer, run security scanners, make solar panels and flat-screen TVs, carbon-date objects and drive the giant particle accelerators at the bleeding edge of physics.

Buckley is renowned in the hi-tech business as a laid-back engineering genius of few words, who doesn't take no for an answer and moves on opportunities like a speeding particle.

But many Kiwis know him as the devoted promoter and benefactor of the Western Springs speedway track.

Buckley fell in love with motorbikes as a teenager and won two national sidecar championships.

Looking for a job building "big things", he apprenticed himself to Auckland's Mason Brothers, which built the biggest things he could find -- ships. By the 1970s he'd set his sights on a very big thing indeed -- the global computer chip market. With no formal qualifications, and against all advice, he founded Buckley Engineering in 1976.

A decade later -- as Buckley Systems (BSL) -- Buckley began working with a company in the US to produce the world's first machine able to implant the circuitry right inside the silicon chip, rather than depositing chemicals on it.

BSL's electromagnets filter and shoot beams of charged atoms -- called ions - into silicon wafers to make them semi-conductive. This ion implantation process depends on accuracy to within a millionth of a centimeter.

BSL is now also at the forefront of a new wave of non-invasive cancer treatments. It is building magnets that fire protons into tumors with extreme precision.

Buckley is now on the verge of his next "big thing" -- a 55-inch, super hi-definition TV screen he describes as 3D without the glasses.

BSL has also been working on a magnet to allow security scanners to see the different densities inside shipping containers -- to spot suspicious solids or fluids.

At the high end of physics, BSL makes the electromagnets that drive giant particle accelerators and their beam storage rings for projects in Australia, the US and Taiwan.

BSL now turns over \$80 million a year, exporting to manufacturers in the US, Europe and Asia which make products for Apple, LG, Panasonic, Hitachi and Mitsubishi, to name a few. There are 280 staff in Auckland, a small Boston office and around 10 small Kiwi businesses which supply BSL.

The company collaborates with universities such as the Massachusetts Institute of Technology in Boston, Monash University in Melbourne and the University of Auckland -- to which Buckley has donated \$1.5 million for a chair to research global warming.

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***Directions: After reading, go back and underline the fact in each paragraph. Then, rewrite the article. Tell Bill Buckley's life story and why his work is important.***

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