Thinner, stronger and more flexible research

March 10 2008

You wouldn't normally associate golf balls with condoms but for University of Queensland researcher Dr Darren Martin, it is all about covering things.

Dr Martin, a materials scientist with UQ's Australian Institute for Bioengineering and Nanotechnology, has developed a unique polyurethane coating that is thinner, stronger and more flexible than what is currently available and could lead to better golf balls and condoms.

The secret to his discovery is synthetic nanoparticles – nanoscale disc-like particles –that can be added to conventional thermoplastic polyurethane (TPU) to extend its benefits and performance. TPUs are used in everything from surfing leg ropes and rollerblade wheels, to soles on shoes and textiles and fabrics like Lycra.

And while many great scientific discoveries can be attributed to a burning desire to help humankind, Dr Martin's inspiration was much simpler.

“I'm a single-figure golfer and I was getting frustrated with paying a lot of money for balls that only end up getting damaged after a few holes,” Dr Martin said.

“We had been working with these nanocomposites for a while and this just seemed like a natural fit.

“By coating the ball in a thin layer of our new polyurethane it can make them much more scuff resistant.”

While in talks with a golf ball manufacturer now, Dr Martin and his team are also exploring other applications.

“The condom is another example of where our technology might be applied,” he said.

“We could make softer and thinner condoms that allow greater sensitivity and are actually stronger than current ones, while also reducing the risk of allergic response which some people have to latex rubber. We can all see the advantages of that application.”

Not limited to the golf green and the bedroom, Dr Martin said the potential applications for the technology are expanding.

“Wherever polyurethane is used, our technology can be used,” he said.

“Areas such as implantable medical device components, the mining industry and new types of textiles similar to Lycra and Spandex.”

He said he was doing this through TenasiTech Pty Ltd, a start-up company formed around the technology by UniQuest – the main technology transfer company for UQ – with the company driving the business development and capital raising to further develop the technology towards products.

Source: University of Queensland