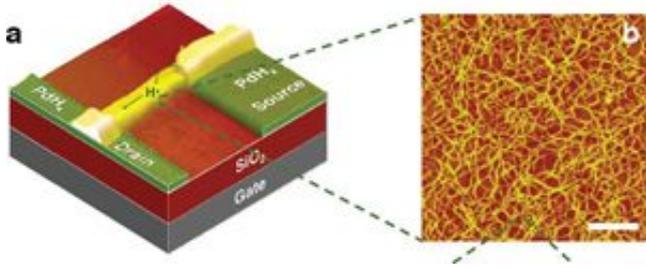


Scientists create photon-based bio transistor



Scientists have been making inroads into interfacing the human body with electronic systems for some time now.

But a massive step towards true integration and communication between human bodies and electronics devices has been made by a team of researchers creating an organic transistor.

The scientists at the University of Washington say they have constructed the other-worldly transistor which uses photons instead of electrons to interface with the world of the living. Good news of course for [Apple](#) fans seeking an even more intimate relationship with their iPads.

While electronic devices use electrons to send information around their components, a similar job is performed using ions or protons – positively charged hydrogen atoms – in human bodies.

Communication between living matter and electronics has been problematic because translating electronic signal into an ionic signal, or vice versa, has proved difficult. But with a new biomaterial derived from crab shells and squid, the team have found it potentially achievable as it can conduct protons.

As protons are used in living cells to transmit signals coming from the brain or other muscles, it could eventually be possible to control such functions directly via a computer. And this is made more likely from the development of a transistor based on the material chitosan.

The team has been able to create a field effect transistor containing a gate, drain and source terminal as usually necessary, but using protons rather than electrons. The prototype measures around five microns wide.

The transistor is then able to switch a proton current off, just as a regular transistor would in a microchip.

The current version of the transistor will require a material other than a silicon base before it can be accepted by a human body, however.

Once some major problems are ironed out, and this could be some time, there are some interesting potential applications for communicating between the human body and electronic devices.

It is thought that it should be possible monitor biological processes. Whether this will involve wirelessly contacting Domino's when a chip senses your stomach is empty is unclear, but we can see the opportunity for lucrative research in that area.