



## Solar cells self-assemble in 'salad dressing'

EMMA WOOLLACOTT | Wed 13th Jan 2010, 05:49 am

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Your salad dressing could become an electronics factory, if work from the University of Minnesota bears fruit.

A team has developed a way to create self-assembling solar cells and other electronics devices by exploiting the way oil and water don't mix. Components added to the water/oil mixture tend to align themselves along the boundary, allowing automatic assembly.

The team settled on the approach after two years' trying to use gravity to assemble components through 'sedimentation'.

"Then we thought if we could concentrate them into a two-dimensional sheet and then have some kind of conveyor belt-like system we could assemble them with high yields and high speed," Heiko Jacobs of the University of Minnesota told the **BBC**.

They built two-dimensional sheets with depressions corresponding to the desired components at the border between the oil and water.

They then prepared the solar cell elements, made of silicon and gold, placing a hydrophobic molecule on the silicon side and a hydrophilic molecule on the gold side.

A sheet of the elements could then be made to float between the two.

All this makes for an extremely simple manufacturing process: the device blank can simply be dipped into the liquids, attracting the right elements to the right places. The team made a working device consisting of 64,000 elements in just three minutes.

The work is reported in *Proceedings of the National Academy of Sciences*.

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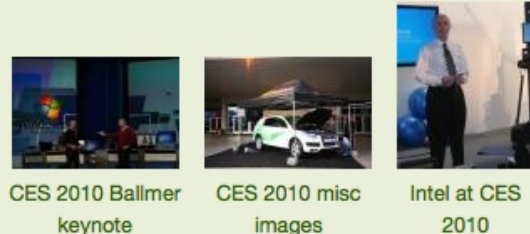
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