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TECHNOLOGY

Bartending lessons for microassembly

Pour half a shot of hot ethylene glycol, such as the antifreeze in your car's engine. Add a sprinkle of light-emitting diodes and a pinch of tiny, cuplike casings. Shake well.

Such a concoction would be an awful drink, but electronics manufacturers may soon start following such recipes to accelerate their assembly lines.

Heiko O. Jacobs and his colleagues at the University of Minnesota, Twin Cities have demonstrated the feasibility of quickly assembling hundreds of identical microcircuit components by agitating subunits in liquid ethylene glycol heated to 100°C.

As detailed in the Aug. 31 *Proceedings of the National Academy of Sciences*, the researchers fit and soldered 600 light-emitting diode chips the size of dust specks into silicon housings in just 2 minutes. The two parts' complementary shapes ensured that they would align, and then surface tension of a solder dollop in the casing bound them tightly to one another. One of the method's appeals is that it assembles many components at the same time, Jacobs says.

This self-assembly technique may prove important for mass-producing microsystems—electronic, biomedical, and otherwise—whose parts are too small for today's “pick-and-place” robots to manipulate, Jacobs suggests. —P.W.



CHIPS DIP In a small shot of ethylene glycol, pairs of electronic microcomponents spontaneously join together.