



BETTER LASER ON A CHIP: After years of trying in a number of labs, a way has been found to put indium phosphide on silicon. Northwestern University electrical engineering professor Manijeh Razeghi, a leading opto-electronics researcher, accomplished this and went on to build the most precise and long-lasting laser yet constructed on a silicon base, a key step toward combining electronics and photonics on a single computer chip. Previously indium phosphide -- in conjunction with gallium arsenide (InGaAsP/InP) -- has been used to build the most precise, longest-lasting lasers for computing and long distance optical fiber communications systems. Razeghi has put a laser on silicon before, but she did it by using a superlattice layer between the two. New method does away with the superlattice layer, making the new device much more economical and practical. Lasers were built layer-by-layer in a specially constructed pressurized chamber directly on a silicon substrate. Process, low-pressure metalorganic chemical vapor deposition, grows solid state materials in layers in a chamber containing a variety of gases. One of the keys to success: the very high crystalline quality of the indium phosphide produced in the chamber.

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