Why not a cascode optocoupler? Here's why not

On this page on March 2, 1978, S. Ashok suggested that the cascode connection of phototransistors has been overlooked. Not so, replies John Carroll of Dynamics Measurement Corp. in Winchester, Mass.—it has been tried and found wanting. "I couldn't make it work well enough to be worth bothering with, and I suspect others have run into the same roadblock," he says.

The problem, according to Carroll, is that a phototransistor acts like a conventional transistor with a photodiode across the collector junction. Even though the cascode circuit holds the collector-to-emitter voltage constant, the base-to-emitter voltage must change to switch the transistor on and off. The photodiode charges the junction capacitances until the transistor turns on, and then the base current must discharge the same capacitances to turn the transistor off again. With rather poor photon collection and a very high beta transistor, **response times in the circuit tend to be in the range of tens of microseconds to milliseconds.** There just isn't very much current available to charge and discharge these capacitances. Carroll suspects that a cascode scheme might work better with a photodiode instead of a phototransistor—but then there would be a problem building up the extremely small output current into a logic swing with good speed.