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ISSCC 2006 Panel on Classic Circuits

An ISSCC 2006 Evening Panel

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In a packed standing room only session, moderator Bill Redman-White opened the "Present (and Future) Classic Circuits with Less than 25 Transistors" evening panel by asking the question "what makes a real classic circuit?" While the audience quietly mulled over their own favorites and possibilities, the number 25 was quickly forgotten by the panel members.

Barrie Gilbert pulled out probably the most interesting item. He provided the silver lining by not only presenting the best circuit of the evening (below, left), but also by making it colorful and humorous with the KERMIT terminology. Who would remember what it stood for, other than it had to do with something KERMITan? We certainly enjoyed being reminded of the power of what just a few bipolar transistors can do.

Tom Lee was funny and entertaining as always and presented "the Rodney

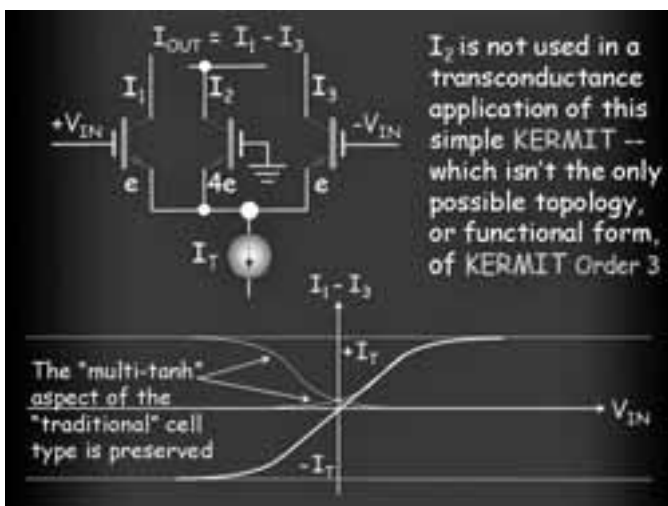
Dangerfield of circuits" (biasing: they never get any respect), which we felt was the second best circuit in the evening panel.

Other panelists presented Class AB output stage (Klaas Bult), linear V-I converter (Takashi Miki), "infinite gain" via positive feedback stages (Bob Dobkin), and companding integrator (Yannis Tsividis, shown below, right). We went to the panel looking for gems, and ended up a little disappointed, wondering why no one talked about something as basic and powerful as a two stage amplifier or a folded cascode amplifier.

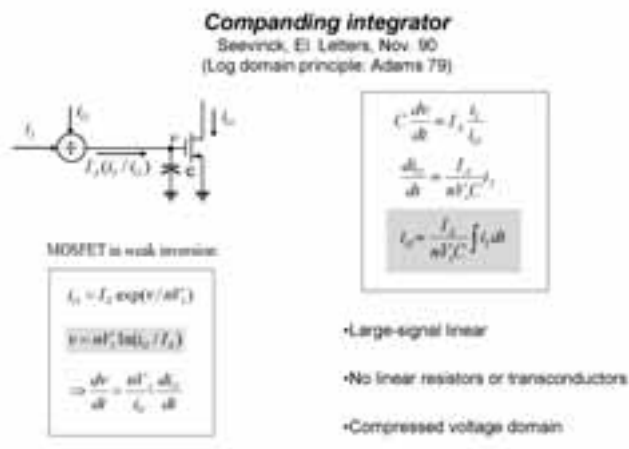
Then the evening panel kicked into a second round of what effectively ended up being a contest of "circuits with as few transistors as possible". Perhaps we should thank Scott Wurcer for launching this contest with a single JFET-resistor combination constant current source. These lighter moments of the second round are what the audience is likely to

remember and have enjoyed the most. Barrie Gilbert's talking about what one can do with just a single diode later led to Yannis Tsividis poking fun at Barrie Gilbert's one diode circuit also needing a supply, a current source, and switches. His tongue in cheek accusation of Barrie Gilbert's one diode circuit needing a switched-capacitor signal processing system for it to work was clearly enjoyed by the audience as well as Barrie Gilbert. Yannis Tsividis's own truly single transistor amplifier based on MOS channel parasitic RC was fun, but obviously not practical.

The element of controversy that can make for a spicy panel was missing, but the friendly competition of single-transistor circuits and routine teasing among the panel members made up for what otherwise may have been an ordinary session. The audience was entertained and will certainly remember that one application-free single transistor amplifier. ■



Best circuit of the evening, presented by Barrie Gilbert.



Companding integrator, presented by Yannis Tsividis.