

## **Title: Heterogeneous Integration - why is it becoming such a big deal and how does it affect electron device development**

If you take any printed circuit board (PCB) today, it is already more than likely an example of heterogeneous Integration. So in truth, Heterogeneous Integration is not really new. So why this new found hype ? In this talk, we describe what needs to be different about heterogeneous integration by trying to address some key differences between the new heterogeneous integration and the ones of bygone eras: What is the optimal size of chiplets or more correctly dielets; what is the optimal pitch at which they need to be connected; How close must we connect them; and how large should we make such integrated units and finally what are the possible showstoppers as we boldly march into this new era. An important implication for those working in the device and integration area: don't kill yourself trying to put everything on one mega chip. It's getting more and more difficult and expensive. We can get equivalent or better results in most cases using heterogeneous dielet integration at fine pitch and close spacing. As they say " small is beautiful and vive la difference!"