



**7th ESA Micro & Nano Technologies
Round Table
ESTEC, Noordwijk, The Netherlands
13-16 September 2010**



**Conclusion
&
Closure**

***Laurent Marchand & Fabien Filhol
European Space Agency
Component Technology Section***

- **1st Round Table in March 1995**
- **2nd Round Table in October 1997**
- **3rd Round Table in May 2000**
- **4th Round Table in May 2003**
- **5th Round Table in October 2005**
- **6th Round Table in October 2005**
- **7th Round table 13-16 September 2010:**
 - **About 90 Abstracts submitted (70 in 2005)**
 - **19 countries participating (Netherlands, Switzerland, France, Denmark, Italy, Spain, Germany, Portugal, UK, China, USA, Belgium, Sweden, Greece, Norway, Finland, Austria, Canada,, Slovakia, Romania)**
 - **3.5 days, 13 sessions**
 - **~~220 registrations (10% increase from 2005)~~**

Major facts

- **Back in 2007, 2 major action lines were defined**
 - **Packaging and stacking/integration**
 - **Reliability and space qualification**
- **Where are we today?**

- **Packaging and stacking/integration seem now on track**
 - **All together 3 complete sessions on packaging and integration**
 - **WLP commercial offering from IAF Itzehoe, ESA WALES should bring additional solutions early 2012**
 - **MEMS stacking, integration show tremendous progress, AAC, 3D+, BAe, IMEC, etc with commercial offering and first initiative to “space qualify” is under implementation with AAC sweden**
 - **Connectivity also addressed (ESCC qualification of AXON Nano D connectors and Mini AVIM Diamond optical connectors.**

However

- **ESA is still in need to validated ATH (Assembly and Test Houses) for standard MEMS packaging and test. Candidates exist HCM (F), Lewicki (G), TS2 (UK)..but need to be validated and extend their offer to the space community.**

- **Reliability and qualification: THIS IS ANOTHER STORY!!**
 - **Reliability:**
 - **commonly agreed that this has to be tackled at product level as it**
 - **Delta activities may be necessary when application is known**
 - **Several pilot cases started: Micro-Mirrors, pressure sensors,**
 - **Qualification:**
 - **This is still an issue**
 - **Standardisation is urgently required if we do not want to miss opportunity**
 - **First initiative started (Lusospace) with expected follow on in next TRP but THIS WILL NOT BE ENOUGH**
 - **ESA and other National Space Agencies will not be able to fund all required actions (consultation, WG, etc...)**