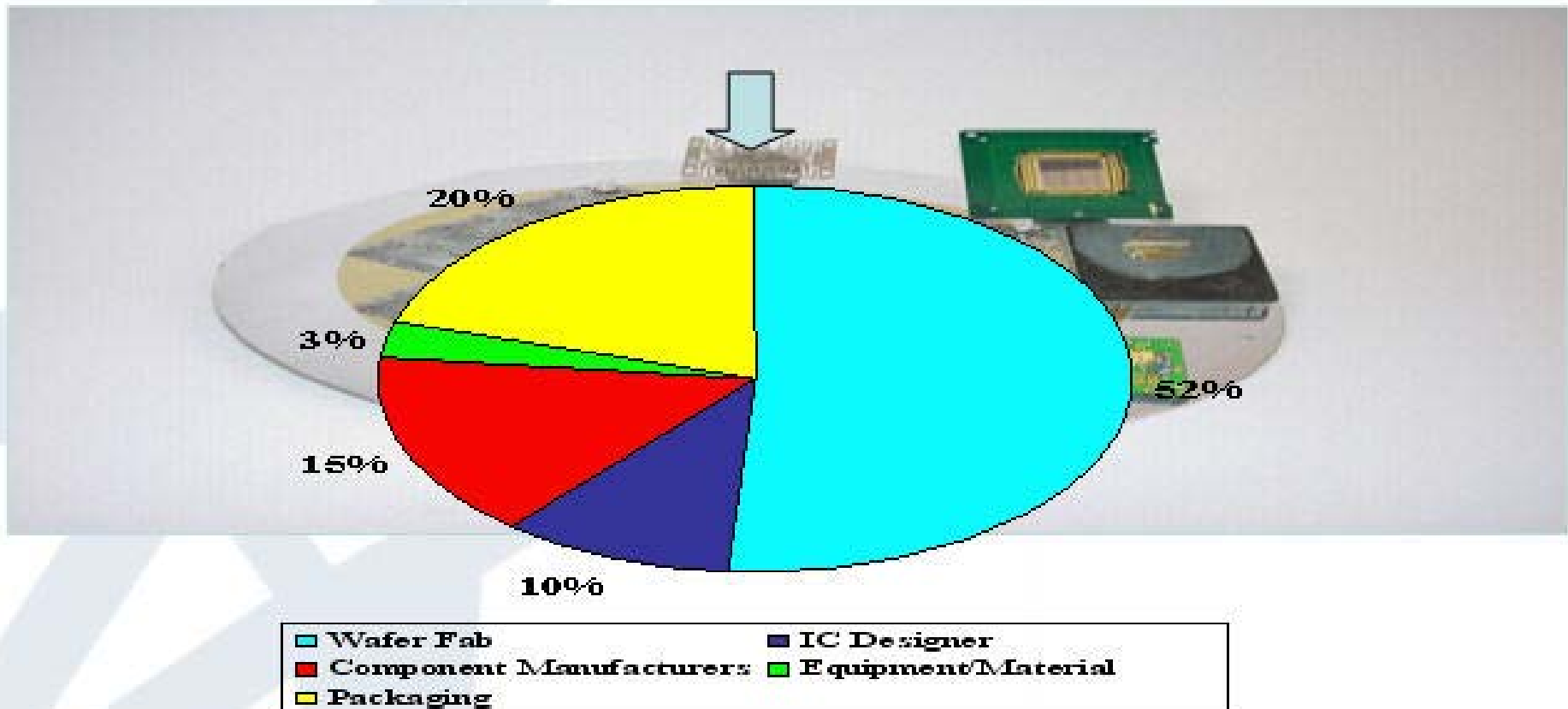


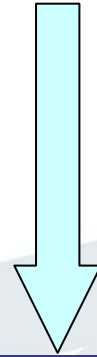
# Advanced Analytical & Test Technologies Support function at IME /A\*STAR



*Typical Industry Relevance:*

# Advanced Analytical & Test Technologies

## Support function at IME @A\*STAR



### Process Characterization

### Contamination Analysis

### Electrical Fault Isolation Device Reliability Failure Mechanism

- \* *Structural defect analysis at atomic scale*
- \* *Interface integrity evaluation of ultra thin layers*
- \* *Defects nature, location, origin and distribution*
- \* *Construction analysis of devices*
- \* *Intermetallic analysis at nanolevel using electron diffraction*
- \* *Chemical identification and location at nanolevel*

- \* *Surface and sub-surface organic and inorganic contamination analysis (5nm -10micron)*
- \* *Chemical bond and structure analysis*
- \* *Mechanical and Thermal characterization of packaging materials*
- \* *Microroughness, nanoindentation of thin films*
- \* *Two dimensional dopant concentration*
- \* *Thermal stability and outgassing analysis*

- \* *Circuit modification and microsurgery by Focussed ion beam*
- \* *ESD and Latchup evaluation*
- \* *Fail site identification, failure mechanism study*
- \* *Failure mechanism by integrated analytical tools*
- \* *Device deprocessing (wet and dry).*

# R&D Relevance

## Collaboration with University and Industries

- **Have published more than 100 research publications and Conferences presentations with University and Industry partnership**
- **Collaborating and supporting other IME division/RIs R&D activities**

## Training Courses

- **Have contributed more than 10 courses for past 3 years**
  - **FA mechanisms, VLSI characterization, Plasma applications, Microelectronic material, process analysis, ESD protection, FA techniques etc.**

## Networking Initiatives

- **Forums**
  - Focused ion beam, Surface Analysis, Industrial Plating and ESD
- **USER GROUP Initiatives**
  - *SFAG (Singapore Focussed Ion Beam Application Group) / 50 members since May 01*
  - *SSAIG (Singapore Surface Analysis Interest Group Group) / 130 members since Sep 02*
  - *SATS-PG (Singapore Analytical & Test Service Providers Group) / 20 members since Feb 03*
  - *SIPG (Singapore Industrial Plating Group) / 50 members since Feb04*

## Industry Relevance -Mode of Operation

- **Unscheduled ( services )**
  - Walk-in activity.
  - many MNCs & SMEs
- **Contract R&D**
  - Project basis ( > 4 weeks ) approach on mutual agreement
- **FAR- your Virtual Research Lab ( Co - Development )**
  - Resources sharing ( Analytical capability/IME - Process & Test capability/Partner)
  - publications/patents/IP sharing
  - Scheduled medium term activity ( > 6 months )

# Singapore Analytical & Test Service Providers Group ( SATS-PG )

Co-ordinator: Gopal Krishnan

## Members

Chiron Technology  
ALS Technichem  
Omega Scientific  
Aneric Enterprise

Reliability  
Inscope  
Star-quest  
Rockwood

S'pore Test Services  
SETSCO  
KES Test  
Shinmark  
Frontier Global Solution

APP Systems  
AVi-Tech  
Rayco Labs  
Quasi-S  
WinTech Nano-Technology Services

## Collaboration With SATS-PG

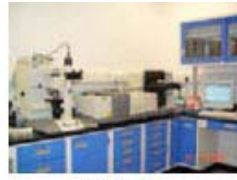
- **Networking amongst Singapore Based Analytical and Test Service Providers**
- **Other related platforms**
  - Singapore Focussed ion Beam Application Group ( SFAG )
  - Singapore Surface Analysis Interest Group ( SSAIG )
  - Singapore Industrial Plating Group ( SIPG )
- **IME to continue to provide high value added services to the electronics industry and focus on advanced analytical and test services**
- **Build strong relationships with SATS-PG**
  - Assistance in upgrading competence and capabilities
  - Recommend analytical and test service requests to local service providers, and provide support if needed
  - Joint R&D projects



**IRPEM**



**GC-MS**



**FTIR**



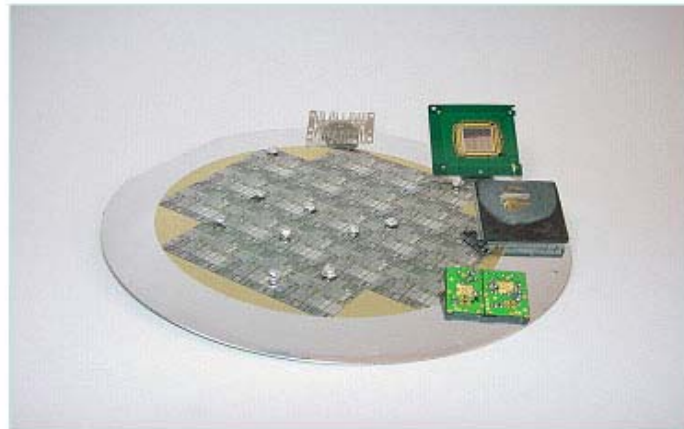
**SEMEDS**



**FIB**



**Probe Stations**



**TEM/EDS/EELS**



**SAM**



**FEAUGER**



**TGA/ITMA**



**DSC/DTA**



**AFM**



**SIMS**