



# ICAMR

International Consortium for Advanced Manufacturing Research

## Access to Advanced Processes on CMOS based Silicon Platforms: Industry's Key to Realizing Next Generation Integrated Devices

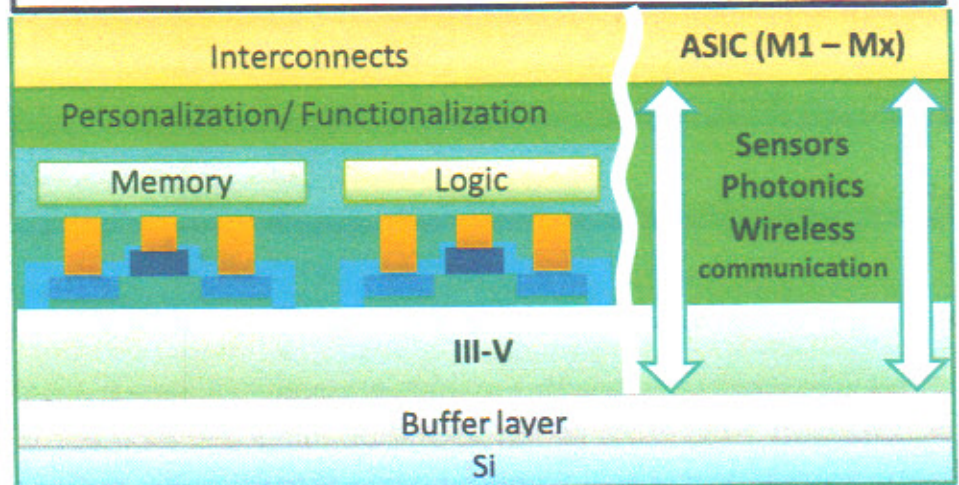
[www.icamr.net](http://www.icamr.net)

ICAMR will address significant hurdles in the manufacturing scale-up of advanced sensors, photonics, and integrated devices. From producing technology road-maps with industry members, to accelerating the manufacturing scale-up of novel materials and integrated devices/systems, ICAMR will align the industry and supply chain to provide solutions to tomorrow's technology needs. ICAMR's programs and infrastructure will provide enabling technologies for the commercialization and deployment of products serving multiple industries, including the "trillion sensors" movement.

The International Consortium for Advanced Manufacturing Research (ICAMR) invites leading global companies with advanced solid state device manufacturing endeavors to participate in an industry-friendly consortium for next generation sensors, photonics and optics, 2.5/3D advanced packaging utilizing ultra-high density interposers, and other advanced manufacturing opportunities. ICAMR will develop innovative processes, materials, and equipment for the development of advanced sensors and other future high-tech products such as emitters, modulators, energy and communications devices/systems, etc. Industry members will also have access to a full scale system integration development line with standardization and reliability testing.

For cost effective, mass production III-V materials (i.e. GaN, GaAs, InP) will be deposited on 200mm / 300mm Silicon substrates to host a variety of advanced devices

Integration of functionalized antennas into smart device is possible; as well as short range RF or long range GPS/SAW communication



## Platform Materials Technology Initiative: III-V Materials Pave Way for Smart Sensors and Other Devices

ICAMR Industry Members will have unprecedented access to a host of lab/fab and test capabilities, as well as expertise, around the state-of-the-art advantages that come from utilizing III-V materials on Silicon.

Whether developing chemical, optical or electrical sensor systems or photonic subcomponents/integrated devices, III-V materials (i.e. GaN, GaAs, InP, etc.) on Silicon provide a number of benefits over traditional Silicon and other technologies, such as:

- High sensitivity
- High-density integration
- Mass manufacturability
- High electron mobility
- Biocompatibility
- Operation at higher voltages
- Lower leakage currents
- Lower thermal noise
- Lower power consumption
- Chemical resistance
- Robust in wide range of environments including radiation hardness, high pressure/temperatures, unaffected by acids

ICAMR will develop solutions combating the technical challenges and risks surrounding the scale-up of III-V and other novel materials, and device/system integration and packaging needs facing these next generation products. Our open-innovation programs include:

- Advanced devices / systems
- High volume manufacturing equipment
- Processes, materials, chemistries, metrology
- Standardization, test, reliability models
- Systems integration and advanced packaging (2.5D / 3D)
- Technology commercialization

### Member Opportunities

- Manufacturing technology roadmapping and standards
- Materials characterization, modeling, integration and manufacturing protocols
- Manufacturing development, prototyping and technology transfer - commercialization
- Process and metrology equipment development & performance validation
- Prototype development, production scale-up, and cost modeling
- Environmental / Health / Safety challenges, and sustainability
- Certification/test/reliability – quality
- Policies/codes/permitting
- University, national labs, and international programs
- Member company application-specific support programs
- Workforce training - educational and internship programs

Contact us to learn more about how to become an ICAMR Industry Member at [icamr@ucf.edu](mailto:icamr@ucf.edu) or call 407-742-4254