



**Mr. M Govindankutty**, a distinguished former scientist at CSIR-National Aerospace Laboratories (NAL), brings over 40 years of exceptional leadership in composite manufacturing, significantly advancing India’s aerospace capabilities. His expertise spans the design, development, and production of critical composite structures, cementing his legacy as a key contributor to India’s self-reliance in aerospace and defense.

## Key Contributions at CSIR-NAL

- SARAS Belly Fairing**  
Led the development of lightweight, durable composite belly fairings for the SARAS aircraft, optimizing aerodynamics and structural integrity.
- LCA Landing Gear Doors**  
Pioneered the design and fabrication of composite landing gear doors for the Light Combat Aircraft (LCA) Tejas, enhancing weight savings and performance.
- LCA Circular Ducts**  
Spearheaded the creation of complex circular ducts using advanced composite techniques, ensuring precision and reliability for high-performance applications.

- AMCA Structures**  
Contributed to the structural component manufacturing of composite components for the Advanced Medium Combat Aircraft (AMCA), supporting India’s next-generation defense ambitions.
- Pressure Bulkheads**  
Developed robust composite pressure bulkheads, critical for maintaining structural integrity under extreme conditions in aircraft programs.
- MiG Aircraft Repair Technologies**  
Innovated repair methodologies for MiG aircraft, extending service life and improving operational readiness for the Indian Air Force.

## Technological Innovations

- Mr. Govindankutty’s work at CSIR-NAL revolutionized composite manufacturing through:**
  - Co-Curing**  
Mastered co-curing techniques to produce highly integrated structures, reducing part count by 40% and minimizing assembly costs and stress points.

- Resin Infusion**  
Advanced Vacuum Enhanced Resin Infusion Technology (VERITy), enabling cost-effective, high-quality composite production without reliance on expensive prepregs.
- Autoclave Innovations**  
Optimized autoclave molding processes to achieve superior fiber volume fractions (up to 60%) and impeccable part quality for airworthy components.

## Impact on India’s Aerospace Self-Reliance

His leadership drove significant forex savings by indigenizing critical defense components, reducing dependency on imports. His efforts bolstered programs like LCA-Tejas and SARAS, aligning with India’s vision of self-reliance in aerospace and defense.