Intelligent Measurement & Evaluation Lab

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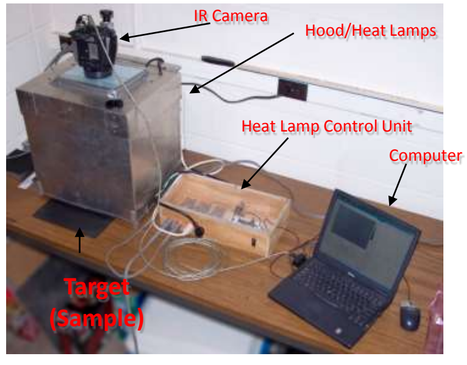
IMEL

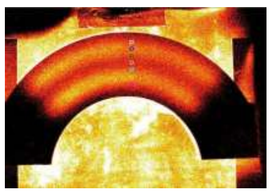
Intelligent Measurement and Evaluation Lab (IMEL) conducts the research and development of non-destructive evaluation (NDE) methods of different types of materials. Carbon/Carbon composites and carbon fiber reinforced plastic (CFRP) used for aerospace applications are the main focus. Due to the high cost involved during the manufacturing of these composites, the analytical evaluation and calculations of material properties of these composites in non-destructive way becomes very important to the industrial point of view. IMEL uses infrared thermography (IRT), immersion ultrasonic testing, air-coupled ultrasonic testing, and other NDE techniques to evaluate these composites without damaging the product.

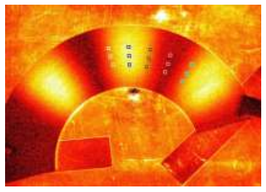
Infrared Thermography

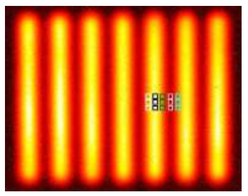


NDE of Space Shuttle

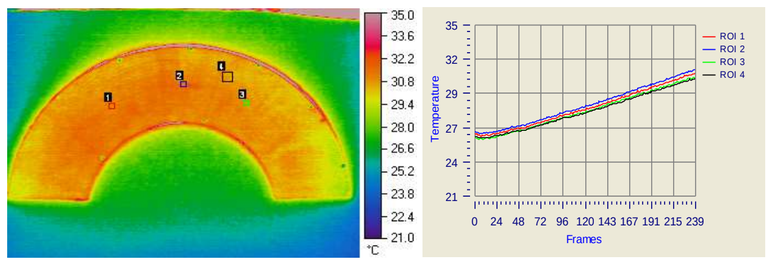
Diffusivity measurement using Flash-heating method



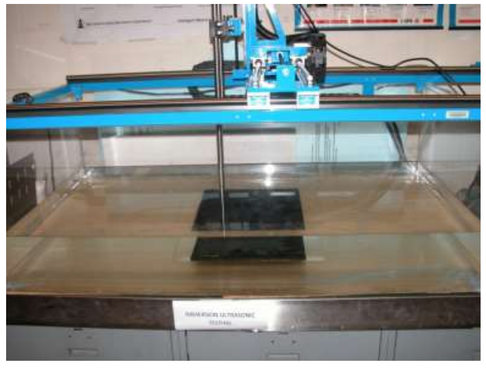




Through-thickness diffusivity measurement using Step-heating method

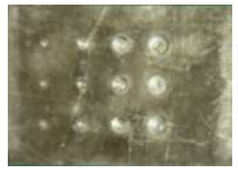


Immersion Ultrasonic Testing

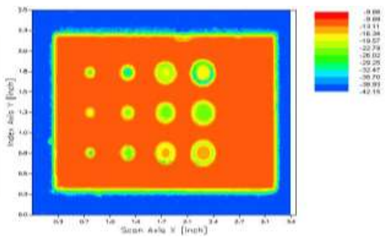


Defect Detection

Aluminum 7075 sample with blind hole



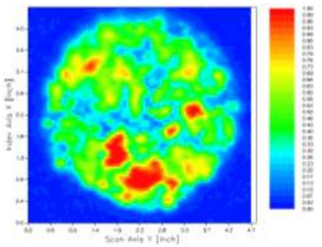
C-Scan Image Result



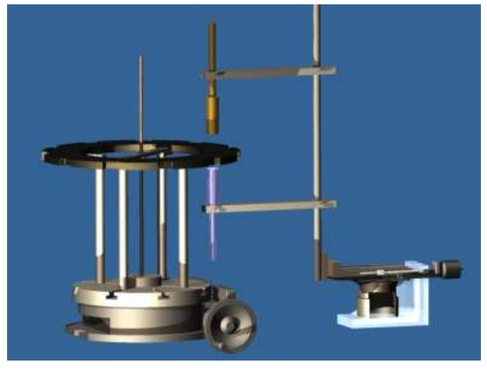
Mechanical Property Evaluation

Concrete Sample

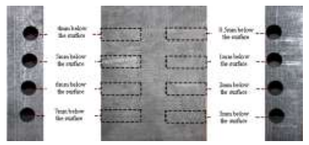
C-Scan Image Result



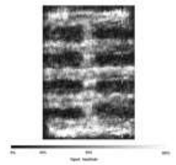
Air-Coupled Ultrasonic Testing



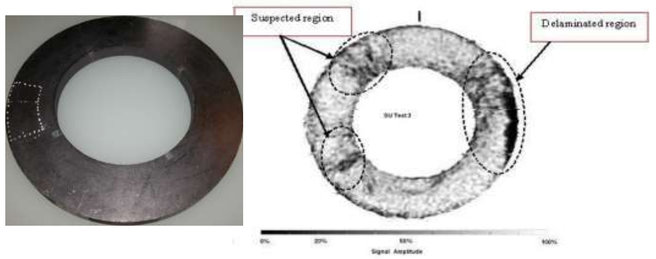
C/C Composite Brake Disk Test Standard

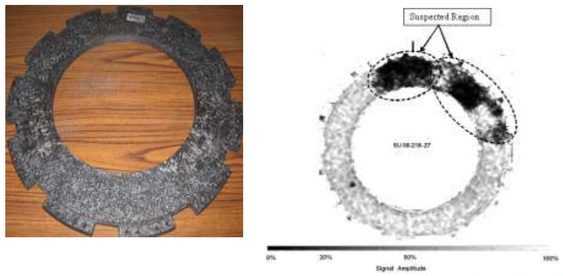


C-Scan Image Result



Commercial C/C Composite Aircraft Brake Disks





Acknowledgements

- Airstar Inc.
- The Boeing Company
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- CAFS
- NASA
- USAF