

航空复合材料的设计、制备与验证
Basics for the Design, Manufacture and Qualification
of Aerospace Composites

A Short Course
Presented by
Dr. Yi Wei, Professor of Donghua University

Outlines

Unit 1: Aerospace Composites – A Historical And Technical Introduction

- 1.1. Aircraft chronicles
- 1.2. Introducing aircraft materials
- 1.3. How composite material reshape today's aircraft
- 1.4. Composite milestones
- 1.5. How composites compared to metals

Unit 2: Aerospace Composite Design Principles

- 2.1. Selection of resin systems
- 2.2. Reinforcement options
- 2.3. Selection of weaving styles
- 2.4. System integration and common trade-offs in composite design

Unit 3: Aerospace Composite Manufacturing Basics

- 3.1. Prepreg manufacturing - solution process
- 3.2. Prepreg manufacturing – hotmelt process
- 3.3. Resin and preform for resin infusion

Unit 4: Aerospace Composite Part Consolidations

- 4.1. Vacuum bag and autoclave basics
- 4.2. Out-of-autoclave via VBO and resin infusion
- 4.3. Part consolidation of thermoplastics

Unit 5: Qualification For Aerospace Composites

- 5.1. Understand material and process specifications
- 5.2. Qualification process elements
- 5.3. Certification