

**CONTENTS**

**SESSION I**

1. Surface Modification for Improved Properties 3

**SESSION II : PHYSICAL AND CHEMICAL CHARACTERISTICS OF SURFACES**

2. Characterization of Surfaces 19  
3. Reaction Kinetics 51  
4. Surface Treatments for Enhanced Bonding Between Inorganic Surfaces and Polymers 75

**SESSION III : PHYSICAL AND CHEMICAL CHARACTERISTICS OF SURFACES**

**(Continued)**

5. The Chemistry of Gaseous Hydrogen Embrittlement 87  
6. Corrosion Principles and Surface Modification 93  
7. High Temperature Corrosion of Surfaces and Protection Schemes 109

**SESSION IV : EMERGING SURFACE MODIFICATION TECHNIQUES**

8. The Effect of Temperatures Developed During Sputter Ion Plating on the Microstructure and Microhardness of AISI 4340 Steel 133

**SESSION V : SURFACE STRUCTURE AND MECHANICAL PROPERTIES**

9. Near Surface Modifications for Improved Crack Tolerant Behavior of High Strength Alloys: Trends and Prospects 143  
10. Fretting Corrosion and Fretting Fatigue 173

**SESSION VI : RELATIONSHIPS BETWEEN PROPERTIES AND PROCESSING FOR  
NON-METRIC MATERIALS**

11. Relationship Between Surface Structure, Ceramic Processing and Mechanical Properties 189

- Index 217