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Nota di contenuto	A Study of Ion Cluster Theory of Molten Silicates and some Inorganic Substances; Preface; Table of Contents; Table of Contents; 1. Significance of Studying Molten State in Metallurgy/Ggeometry/Ceramics; 1.1. Why it Is Important to Interconnect Micro Structure with Relevant Macroscopic Properties; 1.2. Two Aspects of the Studying Approach. Ref.1.; 2. Development of High Temperature Raman Spectroscopy in Shanghai University; 2.1. Selection of Experiment Method in Studying Micro Structure of Molten Silicate; 2.2. Summary of Raman Spectroscopy 2.3. Characteristics of Diverse High Temperature Raman Spectroscopy (HTRS)2.4. The First Set of HTRS Developed in Shanghai University (SU-HTRS); 2.5. The Second Set of HTRS Developed in Shanghai University, SU-HTRS(T/S); Ref. 2; 3. Micro Structure of Diverse Hierarchy in Silicates and Aluminates; 3.1. Micro Structure of Silicates in Phenomenology; 3.2. Elementary Micro Structure of Silicates; 3.3. Second and Multi Order Micro Structure of Silicates; 3.4. Discrepancy of Micro Structure between Silicate Melt and Silicate Glass 3.5. Coordination Bond of Al in Ai-O Tetrahedron, and the Oxygen with Three Bonds3.6. Al-O Tetrahedra in Aluminates; Ref. 3; 4. SiOT Model

Used to Calculate the Raman Spectroscopy of Molten Silicates; 4.1. Survey of the Theoretical Description of HTRS of Molten Silicate; 4.2. Gist of the Model; 4.3. Application of SiOT Model; 4.4. Characteristics and Function of SiOT Model; Ref.4; 5. Interconnection of Micro Structure and Thermodynamic Properties ---CEMS Model; 5.1. CEMS Model; 5.2. Self-Consistent Calculation of CEMS Model; 5.3. A Discussion on the Reliability of CEMS Model  
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8.3. Parameter Fitting Procedures in the SReM Model

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## Sommario/riassunto

The first part of this monograph consists of a discussion of the microstructures of molten silicates and other inorganic substances. It is made up of seven chapters. Chapter 1 considers developments in ion-cluster theory. Chapter 2 introduces experimental approaches to the direct monitoring of a molten sample, such as hightemperature Raman spectroscopes which have successfully recorded Raman spectra from melts at temperatures of 2000K or more. Chapter 3 shows that five types of Si-O tetrahedron are appropriate microstructural units for setting up structural models. Chapter 4 confirms the SiOT

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