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Nota di contenuto	Inorganic Glasses for Photonics: Fundamentals, Engineering and Applications; Contents; Series Preface; Preface; 1: Introduction; 1.1 Definition of Glassy States; 1.2 The Glassy State and Glass Transition Temperature (T _g); 1.3 Kauzmann Paradox and Negative Change in Entropy; 1.4 Glass-Forming Characteristics and Thermodynamic Properties; 1.5 Glass Formation and Co-ordination Number of Cations; 1.6 Ionicity of Bonds of Oxide Constituents in Glass-Forming Systems; 1.7 Definitions of Glass Network Formers, Intermediates and Modifiers and Glass-Forming Systems 1.7.1 Constituents of Inorganic Glass-Forming Systems 1.7.2 Strongly Covalent Inorganic Glass-Forming Networks; 1.7.3 Conditional Glass Formers Based on Heavy-Metal Oxide Glasses; 1.7.4 Fluoride and Halide Network Forming and Conditional Glass-Forming Systems; 1.7.5 Silicon Oxynitride Conditional Glass-Forming Systems; 1.7.6 Chalcogenide Glass-Forming Systems; 1.7.7 Chalcohalide Glasses; 1.8 Conclusions; Selected Bibliography; References; 2: Glass Structure, Properties and Characterization; 2.1 Introduction; 2.1.1 Kinetic Theory of Glass Formation and Prediction of Critical Cooling Rates 2.1.2 Classical Nucleation Theory 2.1.3 Non-Steady State Nucleation; 2.1.4 Heterogeneous Nucleation; 2.1.5 Nucleation Studies in Fluoride

Glasses; 2.1.6 Growth Rate; 2.1.7 Combined Growth and Nucleation Rates, Phase Transformation and Critical Cooling Rate; 2.2 Thermal Characterization using Differential Scanning Calorimetry (DSC) and Differential Thermal Analysis (DTA) Techniques; 2.2.1 General Features of a Thermal Characterization; 2.2.2 Methods of Characterization; 2.2.3 Determining the Characteristic Temperatures; 2.2.4 Determination of Apparent Activation Energy of Devitrification
2.3 Coefficients of Thermal Expansion of Inorganic Glasses
2.4 Viscosity Behaviour in the near-T_g, above T_g and in the Liquidus Temperature Ranges; 2.5 Density of Inorganic Glasses; 2.6 Specific Heat and its Temperature Dependence in the Glassy State; 2.7 Conclusion; References; 3: Bulk Glass Fabrication and Properties; 3.1 Introduction; 3.2 Fabrication Steps for Bulk Glasses; 3.2.1 Chemical Vapour Technique for Oxide Glasses; 3.2.2 Batch Preparation for Melting Glasses; 3.2.3 Chemical Treatment Before and During Melting
3.3 Chemical Purification Methods for Heavier Oxide (GeO₂ and TeO₂) Glasses
3.4 Drying, Fusion and Melting Techniques for Fluoride Glasses; 3.4.1 Raw Materials; 3.4.2 Control of Hydroxyl Ions during Drying and Melting of Fluorides; 3.5 Chemistry of Purification and Melting Reactions for Chalcogenide Materials; 3.6 Need for Annealing Glass after Casting; 3.7 Fabrication of Transparent Glass Ceramics; 3.8 Sol-Gel Technique for Glass Formation; 3.8.1 Background Theory; 3.8.2 Examples of Materials Chemistry and Sol-Gel Forming Techniques; 3.9 Conclusions; References
4: Optical Fibre Design, Engineering, Fabrication and Characterization
