

CONTENTS

Chapter 1

P. Boolchand, Ping Chen, Deassy I. Novita, B. Goodman
New perspectives on intermediate phases.....1

Chapter 2

M. Malki, M. Micoulaut, Deassy Novita, B. Goodman, P. Boolchand
*Rigidity and flexibility of glassy networks and fast-ion
conduction*.....37

Chapter 3

Philip S. Salmon
Structure of network forming liquids and glasses65

Chapter 4

J. Barré, A. R. Bishop, T. Lookman, A. Saxena
*Random bond models of the intermediate phase in network
forming glasses*105

Chapter 5

M. Micoulaut
*Topological theories for rigidity transitions and the Boolchand
intermediate phase*129

Chapter 6

Matthieu Wyart
*Rigidity-based approach to the boson peak in amorphous solids:
from sphere packing to amorphous silica*159

Chapter 7

Gerardo G. Naumis
*Glass transition, rigidity theory and low frequency vibrational
modes anomalies*179

Chapter 8

J. C. Phillips, G. Lucovsky
*Double percolation in the intermediate phase
of network glasses*203

Chapter 9

Mykyta V. Chubynsky
*Characterizing the intermediate phases through topological
analysis in the intermediate phase of network glasses*213

Chapter 10

F. Inam, G. Chen, D. N. Tafen, D. A. Drabold
*Intermediate Phase in Germanium-Selenide glasses:
A Theoretical and Experimental Study* 261

Chapter 11

Kostya Trachenko, Martin T Dove
Network rigidity and dynamics of oxides 281

Chapter 12

John C. Mauro, Arun K. Varshneya
*Atomistic modeling of chalcogenide glass
structure and rigidity percolation* 307

Chapter 13

G. Lucovsky, J. C. Phillips
*Differences between Boolchand Intermediate phases
in bulk chalcogenide glasses and deposited thin films* 327

Chapter 14

Maria Mitkova, Yoshifumi Sakaguchi
*Nano-ionic nonvolatile memory devices – basic ideas and
structural model of rigid Ge-S glasses as medium for them* 345

Chapter 15

M. Anbarasu, S. Asokan
*The manifestation of network topological thresholds in the
electrical switching behavior of chalcogenide glasses* 379

Chapter 16

M. Popescu, A. Velea

*Boilchand intermediate phases: Glass formation ability
and average electronegativity* 413