

PHYSICS OF ICE

Proceedings of the International Symposium on
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PREFACE

Interest in the physical properties of ice has grown considerably during the past decades. Much of its increasing importance as an object of research is due to the fact that ice, apart from its obvious significance to glaciologists and meteorologists, is well suited for investigating the behaviour of protons in "hydrogen bonds". Ice, therefore, is a good model substance for many physical, physico-chemical and biochemical problems. For this reason, workers in all these different disciplines are interested in structure and physical behaviour of ice.

Thus it seemed reasonable to arrange an international symposium with emphasis on the physical and chemical aspects for all scientists interested in ice physics. The present volume contains the Proceedings of this third International Symposium on "Physics of Ice" which was held from September 9-14, 1968, at Munich, Germany. The first meeting of this kind took place at Erlenbach, Switzerland, in 1962. It had been organized by Professor H.Gränicher. The next conference of this series was arranged by Professor Z.Yosida in 1966 at Sapporo, Japan. The program of the Sapporo meeting was wide in scope, including field glaciology and a parallel conference on cryobiology. Dr. J.W.Glen, University of Birmingham, Great Britain, so the participants of the Munich symposium agreed, shall coordinate the planning of the next international symposium on ice physics.

An essential part of the Munich symposium dealt with electrical and mechanical processes originating in proton transfer and relaxation in ice. Other important parts were devoted to structure problems and lattice dynamics as well as to phase transitions, particularly second order transitions. Treatment of applications of ice physics to various fields, such as glaciology, meteorology or to biological problems, had to be restricted to a few

survey lectures given by prominent representatives of these disciplines.

Quite a number of interesting results have already been gained from ice research. The extremely high mobility of protons being transferred by way of hydrogen bonds, the quasi-liquid state of the ice surface, the peculiar phase transformations, the dielectric properties and the indications for ferroelectric behaviour, the appearance of space charges during crystallization as well as some other effects are stimulating for many different fields of science.

Our thanks go to the German Federal Ministry of Scientific Research and to the Bavarian State Ministry of Education and Culture for supporting the Symposium, to all contributors, to all colleagues who helped to arrange it and, particularly, to Dr. D.Helmreich for compiling and preparing this volume.

N.Riehl
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Munich
January, 1969

CONTENTS

List of Participants	v
List of Contributors	xi
Preface	xiii
Review on Problems of the Physics of Ice	1
H. Gränicher	
CRYSTAL STRUCTURE AND CRYSTAL GROWTH	
Structure Problems of Ice	19
E. Whalley	
Deuteron Arrangements in the High-Pressure Forms of Ice	44
W. C. Hamilton, B. Kamb, S.J. Laplace, and A. Prakash	
Structural Studies of Ice Polymorphs by Neutron Diffraction, Proton and Deuteron Nuclear Magnetic Resonance	59
S.W. Rabideau and E.D. Finch	
Study of the Surface of Ice with a Scanning Electron Microscope	81
J.D. Cross	
The Planar Growth of Ice from the Pure Melt	95
P.V. Hobbs	
Segregation of Ammonium Fluoride into Ice Single Crystals	113
G. Noll	
Rejection of Impurities by Growing Ice from a Melt	120
G. Kvajić, V. Brajović, and E.R. Pounder	

Neutron and Gamma Activated Neucleation of Tyndallflowers	132
H. Müller-Krumbhaar	
HYDROGEN BONDING	
Hydrogen Bonds in Biological Systems	138
J. Engel	
The Nature of the Hydrogen Bond	152
G. Statz and E. Lippert	
Positron Annihilation in the Water-Ice System	171
O.E. Mogensen	
Models for the Water Molecule and Related Ions	178
R. Siksna	
RADIATION CHEMISTRY	
Irradiation Produced Solvated Electrons in Ice	184
K. Eiben	
Formation and Structure of Colour Centres in Irradiated Ice	195
J.J. Weiss	
MECHANICAL PROPERTIES	
Mechanical Properties of Ice Single Crystals	197
A. Higashi	
Influence of the Surface Layer on the Plastic Deformation of Ice Single Crystals	213
J. Muguruma	
Impurity Effects on the Plasticity of Ice and their Explanation in Terms of Hydrogen Reorientation	217
S.J. Jones and J.W. Glen	
Elastic Moduli of Ice	223
G. Dantl	
Elastic Anomalies of Ice at Low Temperatures	231
D. Helmreich	
X-Ray Diffraction Topographic Studies of the Deformation Behaviour of Ice Single Crystals	239
A. Fukuda and A. Higashi	

CONTENTS

xvii

Tensile and Flexure Properties of Saline Ice	251
J.E. Dykins	

LATTICE DYNAMICS

Infrared Spectrum of Ice Ih in the Range 4000 to 15 cm^{-1}	271
E. Whalley	
Lattice Dynamics of Ice	287
K.B. Renker and P. v. Blanckenhagen	

THERMAL PHENOMENA

The Vapor Pressure Isotope Effect of Ice and Its Isomers	305
H. Wolff	
Some Experiments on the Regelation of Ice	320
E. Hahne and U. Grigull	
Calorimetric Study of Glass Transition of the Amorphous Ice and of the Phase Transformation between the Cubic and the Hexagonal Ices	329
M. Sugisaki, H. Suga, and S. Seki	
The Specific Heat of Ice Ih	344
M.A. Pick	
Thermoelectric Effect in Ice	348
C. Jaccard	

ELECTRICAL PROPERTIES

Protonic Semiconductors	363
L. Onsager	
Theory of the Mobility of Structural Defects in Ice	369
S. F. Fischer and G. L. Hofacker	
Spectral Behavior of Defects in Ice - Quasiparticle Model. S.F. Fischer, G.L. Hofacker, and M.A. Ratner	385
Proton-Proton and Proton-Lattice Interactions in Ice	401
P. Gosar	
Protonic Conduction of Ice Part I: High Temperature Region	416
B. Bullemer, H. Engelhardt, and N. Riehl	