

Contents

Participants xiii

Group Photograph xvi

Foreword xix

Preface xxiii

The History of Stellar Photometry

Biographical and Historical Notes on the Pioneers of Photometry in Ireland
The Editors 3

Photoelectric Photometry — The First Fifty Years
J.B. Hearnshaw 13

Session 1: Photometric Systems

Photometric Systems
M.S. Bessell 22

The Homogeneity of the UBV(RI)c System
J.W. Menzies 40

A Multicolor Photometric System for the Investigation of the Galaxy Population
V. Straizys 47

Vilnius Photometry in the Southern Hemisphere
R.J. Dodd, M.C. Forbes and D.J. Sullivan 51

viii Contents

Absolute Spectrally Continuous Stellar Irradiance Calibration in the Infrared
*M. Cohen, R.G. Walker, M.J. Barlow, J.R. Deacon, F.C. Witteborn,
D.F. Carbon and G.C. Augason* 59

Infrared Photometric Systems, Standards and Variability
S.K. Leggett, J.A. Smith and T.D. Oswalt 66

CCD Standard Fields
D.H.P. Jones 73

Session 2: High Precision Photometry

High-Precision Photometry
A.T. Young 80

Irriducible Elements of Quality in High-Precision Photometry
C.L. Sterken 92

Lessons from Very Long Term, Very High Precision, Photoelectric Photometry
G.W. Lockwood, B.A. Skiff and D.T. Thompson 99

Accuracy in Variable-Star Work: The Three-Star Single Channel Technique
M. Breger 106

Atmospheric Intensity Scintillation of Stars on Millisecond and Microsecond Time Scales
D. Dravins, L. Lindegren and E. Mezey 113

Photometric and Spectrophotometric Data required for the SUSI Programme
R.R. Shobbrook 120

Secondary Spectrophotometric Standards: Results, and a Future Observational Programme
I.N. Glushneva 125

Session 3: New Techniques

New Techniques

J. Tinbergen 130

Crowded Field Photometry using Post-Exposure Image Sharpening Techniques

R.M. Redfern, A. Shearer, R. Wouts, P. O’Kane, C. O’Byrne, P.D. Read, M. Carter, B.D. Jordan and M. Cullum 147

Photometry with Infrared Arrays

I.S. Glass 154

The Avalanche Photodiode - A Promising Low Light Level Detector for Astronomical Photometry

G. Szécsényi-Nagy 160

A Bi-dimensional Photon-counting Microchannel Plate Detector using a Wedge and Strip Anode

R. Drazdys, J. Jukonis, A. Skrebutėnas, V. Vansevičius and G. Vilkaitis ... 169

The MEKASPEK Project - a New Step towards the Utmost Photometric Accuracy

K.-H. Mantel, H. Barwig and S. Kieseewetter 172

A Four-Star Photometer

J.C. Valtier, J.M. Le Contel, P. Antonelli, P. Michel and J.P. Sareyan 179

Session 4: Automatic Photoelectric Telescopes, and Extinction

Robotic Observatories: Past, Present and Future

R.M. Genet and D.R. Genet 188

Determination of Data Quality and Results from Two Mount Hopkins Robotic Telescopes

D.P. Pyper, S.J. Adelman, R.J. Dukes, Jr., G.P. McCook and M.A. Seeds . 198

An Intimate Relationship with Two Automatic Telescopes for Almost Nine Years

x Contents

D.S. Hall and G.W. Henry 205

The Strömgren Automatic Telescope

R. Florentin-Nielsen 213

Instantaneous Determination of a Variable Extinction Coefficient in Photoelectric Photometry

E. Poretti and F. Zerbi 221

Correlations between Atmospheric Extinction and Meteorological Conditions

H.-G. Reimann and V. Ossenkopf..... 228

On Improving IR Photometric Passbands

A.T. Young, E.F. Milone and C.R. Stagg 235

Session 5: Global Networks

GNAT - A Global Network of Automatic Telescopes

D.L. Crawford 244

Progress with the Whole Earth Telescope

D. O'Donoghue and J. Provençal..... 250

Globalizing Observations: Prospects and Practicalities

E. Budding 257

Transformations and Modern Technology

J. Tinbergen 264

Archiving of Photometric Data

B. Hauck 271

Session 6: Photometry with CCDs

Photometry with CCDs

A.R. Walker 278

Contents xi

Further Progress in CCD Photometry
 P.B. Stetson 291

Problems of CCD Flat Fielding
 W. Tobin 304

Time-Series Photometry: CCDs vs PMTs
 T.J. Kreidl 311

CCD Time-Series Photometry of Faint Astronomical Sources
 S.B. Howell 318

Extended Strömgren Photometry with CCDs
 B.J. Anthony-Twarog and B.A. Twarog 325

High-Precision Photometry with CCDs on Small Telescopes
 M. Zeilik 332

Session 7: Photometry from Space

Photometry from Space
 R.C. Bless and M. Taylor 336

Tycho Photometry: Calibration and First Results
 V. Grossmann 346

Faint Photometry with the HST Wide Field Camera
 S.M.G. Hughes 352

Recent Results from the High Speed Photometer
 M. Taylor, R.C. Bless, M. Nelson, J. Percival, A. Bosh, M. Cooke,
 J. Elliot, W. van Citters, J. Dolan, J. Biggs, J. Wood, and E. Robinson .. 356

Stellar Photometry with the Optical Monitors
 E. Antonello and M. Cropper 358

High-Precision Photometry with Small Telescopes on the Moon
 M. Zeilik 364