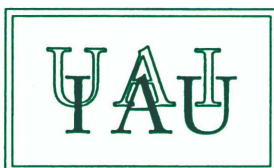


INTERNATIONAL ASTRONOMICAL UNION

SYMPOSIUM NO. 207

EXTRAGALACTIC STAR CLUSTERS

Edited by: DOUG GEISLER, EVA K. GREBEL and DANTE MINNITI



INTERNATIONAL ASTRONOMICAL UNION

PUBLISHER
THE ASTRONOMICAL SOCIETY OF THE PACIFIC

EXTRAGALACTIC STAR CLUSTERS

IAU SYMPOSIUM VOLUME 207

COVER ILLUSTRATION:

Volcan Villarica, with Pucón in the foreground, spews out the Antennae galaxies, where a large number of massive young star clusters have been born in the merger. To the right, is the old Galactic globular cluster M10 and to the left, M87, with its enormous globular cluster system.

Antennae: Whitmore (STScI) and NASA

M87 and Background: AURA/NOAO/NSF

M10: Kohle and Credner (Hoher List/AIUB)

Pucón: C.J.E.

Design: M. Hilker and E. Grebel

THE ASTRONOMICAL SOCIETY OF THE PACIFIC
390 Ashton Avenue – San Francisco – California – USA 94112-1722
Phone: (415) 337-1100 E-Mail: catalog@astrosociety.org
Fax: (415) 337-5205 Web Site: www.astrosociety.org



ASP CONFERENCE SERIES - EDITORIAL STAFF

Managing Editor: D. H. McNamara LaTeX-Computer Consultant: T. J. Mahoney
Associate Managing Editor: J. W. Moody Production Manager: Enid L. Livingston
Production Assistant: Andrea Weaver:

PO Box 24463 – 211-KMB – Brigham Young University – Provo – Utah 84602-4463
Phone: (801) 422-2111 Fax: (801) 378-4049 E-Mail: pasp@byu.edu

ASP CONFERENCE SERIES PUBLICATION COMMITTEE:

Alexei V. Filippenko	Geoffrey Marcy
Ray Norris	Donald Terndrup
Frank X. Timmes	C. Megan Urry

A listing of all other IAU Volumes published by the ASP
is cited at the back of this volume

INTERNATIONAL ASTRONOMICAL UNION

98bis, Bd Arago – F-75014 Paris – France

Tel: +33 1 4325 8358

E-mail: iau@iap.fr

Fax: +33 1 4325 2616

Web Site: www.iau.org



EXTRAGALACTIC STAR CLUSTERS

Proceedings of the 207th Symposium of the IAU
held in Pucón, Chile
12-16 March 2001

Edited by

DOUG GEISLER

Universidad de Concepción, Concepción, Chile

EVA K. GREBEL

Max Planck Institute for Astronomy, Heidelberg, Germany

and

DANTE MINNITI

Pontificia Universidad Católica de Chile, Santiago, Chile

© 2002 by International Astronomical Union All Rights Reserved

No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means – graphic, electronic, or mechanical including photocopying, taping, recording or by any information storage and retrieval system, without written permission from the IAU.

Library of Congress Cataloging in Publication Data
Main entry under title

LOC #: 2002108401
ISBN: 1-58381-115-X

IAU Publications - First Edition

Published on behalf of IAU by: The Astronomical Society of the Pacific

Printed in United States of America by: Sheridan Books, Chelsea, Michigan



This volume is dedicated to Robert Schommer (1946 - 2001). Everyone who works in the field of extragalactic star clusters, as well as many other fields in astronomy, knows Bob's countless contributions to our science. But Bob was more than just an outstanding astronomer. He was a wonderfully kind, warm, funny and charming fellow. His smile could light up a room. Many IAU meetings bear his mark, in particular those cute quotes (many of them his) that crop up during such meetings that he wrote down and were published along with the volume. He also loved Chile deeply, and it is especially appropriate that the first IAU Symposium in Chile remember him. Salud, Bob!

(Photo courtesy of Amnon Shoenfeld)



Everyone is eager to start IAU Symposium 207.

Table of Contents

Preface	xviii
Participant List	xx
Conference photograph	xxv

Part 1. The Star Clusters of Local Group Galaxies

Section A. Invited Reviews and Contributed Talks

Metal-Poor Globular Clusters of the Milky Way and Environs	3
<i>J. E. Hesser and J. P. Fulbright</i>	
Bulge Globular Clusters	15
<i>B. Barbuy, S. Ortolani and E. Bica</i>	
The Galactic System of Open Star Clusters: A Personal Perspective	24
<i>R. L. Phelps</i>	
The Globular Cluster System of M31	38
<i>P. Jablonka</i>	
New CCD Survey of Globular Clusters in M31	46
<i>M. G. Lee, S. C. Kim, D. Geisler, J. Seguel, A. Sarajedini and W. Harris</i>	
The Globular Clusters of M31: Keys to its Formation History	52
<i>K. Perrett, T. Bridges, D. Hanes, M. Irwin, D. Carter, J. Brodie, J. Huchra and F. Watson</i>	
M31 Globular Cluster Metallicities and Ages	58
<i>P. Barmby</i>	
The Globular Clusters of the Fornax Dwarf Spheroidal Galaxy: Properties, Environment	62
<i>E. Hardy</i>	
Globular Cluster Systems: Comparison with the Milky Way	68
<i>D. Minniti</i>	
The Formation Chronology of Local Group Spiral Galaxies	73
<i>A. Sarajedini</i>	
The Star Cluster Systems of the Magellanic Clouds	83
<i>G. S. Da Costa</i>	
Star Clusters in Irregular Galaxies in the Local Group	94
<i>E. K. Grebel</i>	

Section B. Poster Papers

Near Infrared Photometry of New Galactic Globular Clusters GC01 and GC02	107
<i>J. Borissova, V. D. Ivanov and L. Vanzi</i>	
Relative Ages from Horizontal-Branch Morphology: Revisited	110
<i>Y.-W. Lee, H.-c. Lee, S.-J. Yoon, S.-C. Rey and B. Chaboyer</i>	
Second Parameter Effects in and between M3 and Palomar 3	113
<i>M. Catelan, R. T. Rood and F. R. Ferraro</i>	
Age as the Second Parameter in NGC 288/NGC 362?	116
<i>M. Catelan, M. Bellazzini, F. R. Ferraro, F. Fusi Pecci, S. Galleti and W. B. Landsman</i>	
A Space Motion Study of the Globular Cluster M13	119
<i>L. Chen, J. J. Wang and J. L. Zhao</i>	
Oxygen Abundances in Bulge-like Dwarf Stars	122
<i>L. Pompéia, B. Barbuy and M. Grenon</i>	
NGC 3603 – a Local Template for Massive Young Clusters	126
<i>B. R. Brandl, W. Brandner, F. Eisenhauer, A. F. J. Moffat, F. Palla and H. Zinnecker</i>	
The Environments of the Massive Star Clusters in the Carina Nebula ...	129
<i>K. Brooks, J. Rathborne and M. Burton</i>	
Infrared Imaging of the Arches Cluster - Adaptive Optics in the Densest Region of the Milky Way	132
<i>A. Stolte, E. K. Grebel, W. Brandner and D. F. Figer</i>	
Cluster Distances using Delta Scuti Stars: The Open Clusters Praesepe and NGC 7062	135
<i>T. Arentoft and L. M. Freyhammer</i>	
Cluster Distances using δ Sct Stars; Oscillating Blue Stragglers in ω Cen	138
<i>L. M. Freyhammer and J. O. Petersen</i>	
A Survey of M31 Globular Clusters Using WFPC2 on board HST	140
<i>R. M. Rich, C. E. Corsi, M. Bellazzini, L. Federici, C. Cacciari and F. Fusi Pecci</i>	
Washington Photometry of New Globular Clusters in M31	143
<i>S. C. Kim, M. G. Lee, D. Geisler, J. Seguel, A. Sarajedini and W. E. Harris</i>	
Search Methods for Globular Cluster Candidates in M31	146
<i>J. C. Seguel, D. Geisler, M. G. Lee, S. C. Kim, A. Sarajedini and W. E. Harris</i>	
Star Clusters and Stellar Populations of the M31 Disk as Viewed by HST	149
<i>B. F. Williams and P. W. Hodge</i>	
M31 Globular Clusters in the Near-Infrared	152
<i>W. Brandner, R. B. Tully and J. N. Heasley</i>	

The NICMOS View of M31's Metal Rich Globular Clusters	154
<i>A. W. Stephens, J. A. Frogel, W. Freedman, C. Gallart, P. Jablonka, S. Ortolani, A. Renzini and R. M. Rich</i>	
HST-WFPC2 Observations of the Star Clusters in the Giant III Regions of M33	157
<i>M. G. Lee, H. S. Park, S. C. Kim, W. H. Waller, J. W. Parker, E. M. Malumuth and P. W. Hodge</i>	
Kinematics of Star Clusters in M33: Distinct Populations.....	160
<i>R. Chandar, L. Bianchi, H. C. Ford and A. Sarajedini</i>	
Second-parameter Globular Clusters in the Milky Way and in M33 as Tracers of Mass Loss from M31 in the Early Epoch?	163
<i>V. V. Kravtsov</i>	
The Globular Cluster Terzan 7 in the Sagittarius Dwarf Spheroidal Galaxy	165
<i>E. V. Held, A. Rosenberg, I. Saviane and Y. Momany</i>	
The RR Lyrae Variables in M54 and the Sgr Dwarf Galaxy	168
<i>C. Cacciari, M. Bellazzini and S. Colucci</i>	
Element Abundances of Three Giants in Terzan 7.....	171
<i>G. Wallerstein, G. Gonzalez and D. Geisler</i>	
Surface Photometry of Star Clusters in the Dwarf Elliptical Galaxies NGC 185 and NGC 205	174
<i>S. C. Kim, M. G. Lee, D. Geisler, A. Sarajedini, T. E. Armandroff and G. S. Da Costa</i>	
New Cluster Candidates in Dwarf Galaxies of the Local Group	177
<i>M. H. Pedreros and C. Gallart</i>	
Comparative Classification of Globular Clusters in the Galaxy and LMC	180
<i>O. Yatsyk and O. Eigenson</i>	
OGLE II Observations of Star Clusters in the Magellanic Clouds	184
<i>G. Pietrzyński</i>	
A Large and Homogeneous Sample of CMDs of LMC Stellar Clusters ..	187
<i>E. Brocato and E. Di Carlo</i>	
HST Observations of 3 More Old LMC Clusters	190
<i>J. A. Johnson, M. Bolte, P. B. Stetson and J. E. Hesser</i>	
Old LMC Globular Clusters: Reticulum	193
<i>G. Marconi, V. Ripepi, G. Andreuzzi, G. Bono, R. Buonanno and S. Cassisi</i>	
Ages and Metallicities of Five Intermediate-age Star Clusters Projected Towards the Small Magellanic Cloud	196
<i>J. J. Clariá, A. E. Piatti, J. F. C. Santos Jr., E. Bica, A. Sarajedini and D. Geisler</i>	
Near-Infrared Imaging of the LMC Nebula N11B	199
<i>R. H. Barbá and M. Rubio</i>	

Two New Massive Binary Stars in the Magellanic Clouds	202
<i>V. S. Niemela</i>	

Part 2. Globular Cluster Systems of Distant Galaxies

Section A. Invited Reviews and Contributed Talks

Metal-rich and Metal-poor Globular Clusters in Ellipticals: Did we learn anything? or Constraints on Galaxy Formation and Evolution From Globular Cluster Sub-populations	207
<i>M. Kissler-Patig</i>	
Globular Cluster Subpopulations in Early-Type Galaxies: Insights Into Galaxy Formation	218
<i>J. P. Brodie</i>	
New Insights from a Study of The Globular Cluster Systems of 60 Early-Type Galaxies	229
<i>A. Kundu and B. Whitmore</i>	
The Globular Cluster Systems of Ellipticals and Spirals	238
<i>D. A. Forbes</i>	
3-Gyr-old Globular Clusters in the Merger Remnant NGC 1316: Implications for the Fate of Globular Clusters Formed During Gas-rich Galaxy Mergers	245
<i>P. Goudfrooij</i>	
The Globular Cluster Specific Frequency in NGC 1399 and 4486: A Comparative Study	251
<i>J. C. Forte, D. Geisler, E. Kim, M. G. Lee, and P. Ostrov</i>	
Kinematics of Globular Clusters in M49 and M87	256
<i>T. Bridges</i>	
Spectroscopy of Globular Clusters in NGC 1399 – A Progress Report ...	263
<i>T. Richtler, B. Dirsch, D. Geisler, K. Gebhardt, M. Hilker, L. Infante, D. Minniti, M. Rejkuba, J. C. Forte, S. Larsen, E.K. Grebel and V. Alonso</i>	
Ages and Metallicities of Globular Clusters in NGC 5128	269
<i>E. V. Held, L. Federici, C. Cacciari and V. Testa</i>	
The Globular Cluster Systems of the Sculptor Group	275
<i>K. Olsen, B. Miller, R. Schommer, N. Suntzeff and J. Bright</i>	
Globular Cluster Systems in the Hydra I Galaxy Cluster	281
<i>M. Hilker</i>	

Ultra-Compact Dwarf Galaxies: A New Class of Compact Stellar System Discovered in the Fornax Cluster	287
<i>M. Drinkwater, K. Bekki, W. Couch, S. Philipps, B. Jones and M. Gregg</i>	
Extragalactic Globular Cluster Systems in the Near-IR	294
<i>T. H. Puzia, M. Kissler-Patig, J. Brodie, P. Goudfrooij, M. Hilker, D. Minniti and S. Zepf</i>	

Section B. Poster Papers

Globular Clusters in Dwarf Elliptical Galaxies	303
<i>B. W. Miller, J. M. Lotz, H. C. Ferguson, M. Stiavelli and B. C. Whitmore</i>	
Discovery of Likely Globular Clusters in Maffei 1	306
<i>R. Buta and M. L. McCall</i>	
Deep Wide-Field Photometry of the NGC 5128 Globular Cluster System: A Progress Report	309
<i>G. L. H. Harris, D. Geisler, W. E. Harris and J. E. Hesser</i>	
Globular Clusters and Planetary Nebula Kinematics in NGC 5128 (Cen A)	312
<i>E. W. Peng, H. C. Ford and K. C. Freeman</i>	
The Globular Cluster System of NGC 5128	315
<i>M. Rejkuba</i>	
Ages and Metallicities of Globular Clusters in NGC 4472	318
<i>M. A. Beasley, R. M. Sharples, T. J. Bridges, D. A. Hanes, S. E. Zepf, K. M. Ashman and D. Geisler</i>	
The Globular Cluster System of NGC 1316	321
<i>M. Gómez, T. Richtler, L. Infante and G. Drenkhahn</i>	
The Outer Halo Cluster System of NGC 1399	324
<i>B. Dirsch, D. Geisler, T. Richtler and J. C. Forte</i>	
Resolving Globular Clusters in the Fornax Cluster and Beyond	327
<i>C. J. Grillmair, J. Holtzman and R. Elson</i>	
A Comparative Study of Globular Cluster Systems in UGC 9799 and NGC 1129	330
<i>M. G. Lee, E. Kim, D. Geisler, T. Bridges and K. Ashman</i>	
Globular Clusters as Probes of the Formation History of Elliptical Galaxies: Results for NGC 4472	333
<i>K. L. Rhode and S. E. Zepf</i>	
Dynamics of Globular Cluster Systems in Elliptical Galaxies	336
<i>A. J. Romanowsky</i>	
Dynamical Studies of the M87 Globular Cluster System: The Use of the CFHT MOS	339
<i>D. A. Hanes</i>	

Globular Clusters around Galaxies in Groups	342
<i>C. Da Rocha, C. Mendes de Oliveira, M. Bolte, B. L. Ziegler and T. H. Puzia</i>	
Search for Globular Clusters in the Surroundings of Dwarf Galaxies in Fornax: Intracluster Globulars?	345
<i>L. P. Bassino, S. A. Cellone and J. C. Forte</i>	
Globular Cluster Specific Frequencies in Coma	348
<i>A. Marín Franch and A. Aparicio</i>	
Resolved RSG and Bright AGB Stars in NGC 1313	351
<i>E. Pompei, S. Brilliant, G. Marconi and L. Vanzì</i>	

Part 3. Super Star Clusters and Associations

Section A. Invited Reviews and Contributed Talks

Super Stellar Clusters in HII Galaxies	357
<i>E. Telles</i>	
The Formation and Evolution of Young Star Clusters in the Antennae ..	367
<i>B. C. Whitmore</i>	
IFS and IR Observations of Star Clusters in the Antennae	378
<i>S. Mengel, M. D. Lehnert, N. Thatte and R. Genzel</i>	
Super Star Clusters in M82	383
<i>R. W. O'Connell</i>	
Triggering the Formation of Young Clusters	390
<i>B. G. Elmegreen</i>	
The Peculiar Complexes of Star Clusters in Galaxies	401
<i>Y. N. Efremov</i>	
Systematic Properties of Young Clusters and Associations in Galaxies	410
<i>R. C. Kennicutt Jr., F. Bresolin and A. E. Dolphin</i>	
Open, Massive and Globular Clusters – Part of the Same Family?	421
<i>S. S. Larsen</i>	
Clusters in Extragalactic HII Regions and their Modelling	428
<i>R. M. González Delgado</i>	
Star Clusters in Giant Extragalactic HII Regions	439
<i>Y. Zhi-yao</i>	

Section B. Poster Papers

Star Clusters in Galactic Resonance Rings	447
<i>R. Buta</i>	

The Young Star Clusters Parameters in Late Type Spiral Galaxies	450
<i>A. S. Gusev</i>	
Star Formation Properties of 100 Star Formation Complexes in 20 Galaxies	453
<i>F. Sakhibov and M. A. Smirnov</i>	
IC 1613 OB Associations and Star Cluster Candidates	456
<i>J. Borissova, R. Kurtev, L. Georgiev, M. Rosado and G. Ivanov</i>	
Superbubble Metallicities and X-ray Luminosities	459
<i>S. Silich and S. Oey</i>	
Embedded Clusters in the Low Metallicity Galaxy SBS 0335-052	461
<i>L. Vanzi, L. K. Hunt and T. X. Thuan</i>	
Super Star Clusters in NGC 7673 and Mrk 8	464
<i>N. Homeier and J. S. Gallagher</i>	
The Early Stages of Extragalactic Star Cluster Evolution: New Results from Gemini	468
<i>K. E. Johnson, W. D. Vacca, P. S. Conti and H. A. Kobulnicky</i>	
Kinematic Masses of Super Star Clusters in NGC 1569	471
<i>A. M. Gilbert and J. R. Graham</i>	
HST Observations of Young Star Clusters in Interacting Galaxies	474
<i>K. D. Borne, W. C. Keel, P. N. Appleton, C. Struck, R. A. Lucas and A. B. Schultz</i>	
Tidally-induced Super Star Clusters in M82	477
<i>R. de Grijs, R. W. O'Connell and J. S. Gallagher III</i>	
The Top-Heavy Mass Function of the Young Super Star Cluster M82-F	479
<i>L. J. Smith and J. S. Gallagher III</i>	
Stellar Populations in the Antennae (NGC 4038/9): Exploring a Galaxy Merger Pixel by Pixel	483
<i>S. A. Kassir, J. A. Frogel and R. W. Pogge</i>	

Part 4. Star Cluster Formation and Evolution: Theory and Observation

Section A. Invited Reviews and Contributed Talks

Star Formation in Large N Clusters	489
<i>C. J. Clarke</i>	
Giant Molecular Clouds and Cluster Formation	499
<i>M. Rubio</i>	

A Revised CO View of the Large Magellanic Cloud with NANTEN: New Deep Observations	505
<i>Y. Fukui</i>	
The Mass Function of Young Star Clusters in our Galaxy and Nearby Galaxies: Is it Universal?	515
<i>R. Sagar</i>	
Analysis of Colour-Magnitude Diagrams of Rich LMC Clusters: NGC 1831	525
<i>B. X. Santiago, L. Kerber, R. Castro, M. Wilkinson, R. de Grijs, R. Johnson, G. Gilmore and S. Beaulieu</i>	
The Infrared Luminosity Function in the 30 Dor Cluster	531
<i>H. Zinnecker, M. Andersen, B. Brandl, W. Brandner, D. Hunter, R. Larson, M. McCaughrean, G. Meylan and A. Moneti</i>	
Variable Stars in Clusters and the Distance Scale - Some Recent Results Concerning the LMC Cluster NGC 1866	539
<i>A. R. Walker, G. Raimondo and E. di Carlo</i>	
Cluster Mass and Metallicity Distributions: Reconstructing the Events During Halo Formation	545
<i>W. E. Harris</i>	
Mass Determinations of Star Clusters	555
<i>G. Meylan</i>	
Formation and Disruption of Globular Star Clusters	566
<i>S. M. Fall and Q. Zhang</i>	
Dynamical Evolution of Rich Star Clusters in the LMC	577
<i>M. I. Wilkinson, G. F. Gilmore and J. Hurley</i>	
The Life and Death of Globular Clusters	584
<i>H. M. Lee</i>	
Dynamical Friction in dE Globular Cluster Systems	593
<i>J. M. Lotz, B. W. Miller, H. C. Ferguson, M. Stiavelli and R. Telford</i>	
Old and New Tools for Understanding the Evolution of Stars in Clusters	599
<i>F. D'Antona</i>	
47 Tucanae: The Spectroscopic versus CMD Age Discrepancy	610
<i>A. Vazdekis, M. Salaris, N. Arimoto and J. A. Rose</i>	
Stellar Populations in Star Clusters: The Rôle Played by Stochastic Effects	616
<i>G. Bruzual A.</i>	
Broad-band Photometric Evolution of Star Clusters	625
<i>L. Girardi</i>	
Evolution of Globular Clusters Formed in Mergers	630
<i>F. Schweizer</i>	

Predicting Metallicities and Color Distributions for Secondary GCs Forming in Spiral Galaxy Mergers at Various Redshifts	642
<i>U. Fritze-v. Alvensleben</i>	
Dwarf Galaxies and Star Clusters in Tidal Tails	648
<i>P. M. Weilbacher, U. Fritze-v. Alvensleben and P.- A. Duc</i>	
Formation Scenarios for Globular Clusters and Their Host Galaxies	653
<i>S. E. Zepf</i>	
Evolution of Globular Cluster Systems in Elliptical Galaxies	664
<i>E. Vesperini</i>	

Section B. Poster Papers

The Fragmentation of Expanding Shells: Cloud Formation Rates and Masses	675
<i>J. Palouš, R. Wünsch and S. Ehlerová</i>	
Formation of Globular Clusters in Turbulent Molecular Clouds	678
<i>M. P. Geyer and A. Burkert</i>	
Formation of Twin Clusters in a Galactic Tidal Field	681
<i>C. Theis</i>	
NANTEN Observations of the LMC: Giant Molecular Clouds as Formation Sites of Stellar Clusters	684
<i>N. Mizuno, R. Yamaguchi, T. Onishi, A. Mizuno and Y. Fukui</i>	
Mass Segregation in the Young SMC Cluster NGC 330	687
<i>M. Sirianni, A. Nota, G. De Marchi, C. Leitherer and M. Clampin</i>	
An HST View of 30 Doradus	691
<i>J. Maíz-Apellániz, N. R. Walborn and R. H. Barbá</i>	
Massive Stars Ejected from R136?	694
<i>B. R. Brandl, D. F. Chernoff and A. F. J. Moffat</i>	
The Size Distribution of Massive Young Clusters	697
<i>J. Maíz-Apellániz</i>	
HST and Keck Observations of a Young Globular Cluster in the Spiral Galaxy NGC 6946	700
<i>S. S. Larsen, J. P. Brodie, B. G. Elmegreen, Y. N. Efremov, P. W. Hodge and T. Richtler</i>	
The Disruption Time of Clusters in Different Galaxies	703
<i>S. G. Bouloukos and H. J. G. L. M. Lamers</i>	
The HST Census of Nuclear Star Clusters in Late-Type Spirals	706
<i>T. Böker</i>	
Circumnuclear Star Formation in Spiral Galaxies from HST Images: NGC 4314	708
<i>C. Winge and M. G. Pastoriza</i>	

Towards Better Age Estimates for Stellar Populations: The Y ² Isochrones	711
<i>P. Demarque, S. Yi and Y.-C. Kim</i>	
Testing Intermediate-age Stellar Evolution with Magellanic Cloud Clusters	713
<i>C. Gallart, M. Zoccali, G. Bertelli, C. Chiosi, P. Demarque, L. Girardi and S. Yi</i>	
The Determination of the Age of Globular Clusters: A Statistical Approach	716
<i>M. Rengel, J. Mateu and G. Bruzual</i>	
Age Dating of Globular Clusters Using UBV (RI) Main-sequence Photometry in the Two-color Diagram: Age of NGC 6397	719
<i>V. V. Kravtsov</i>	
The H β Index As a Chronometer of Extragalactic Globular Cluster Systems	721
<i>H.-c. Lee, S.-J. Yoon and Y.-W. Lee</i>	
Dating Star Clusters in the Small Magellanic Cloud	724
<i>A. V. Ahumada, J. J. Clariá, E. Bica and C. M. Dutra</i>	
Template Integrated Spectra of Star Clusters	727
<i>J. F. C. Santos Jr., D. Alloin, E. Bica and C. J. Bonatto</i>	
Building Dwarf Galaxies Out of Merged Young Star Clusters	730
<i>M. Fellhauer</i>	
Metallicity Gradients in Globular Cluster Systems: the Trace of a Self-Enrichment Process?	733
<i>G. Parmentier, P. Magain, A. Noels, A. Thoul and E. Jehin</i>	
Modification of the Core Overshoot Treatment	736
<i>J.-H. Woo, P. Demarque and S. Yi</i>	
A New Method for Measuring the Detailed Chemical Composition of Globular Clusters from High-Resolution, Integrated-Light Spectra	739
<i>R. A. Bernstein and A. McWilliam</i>	

Part 5. Future Prospects and Conference Summary

Section A. Invited Reviews

Extragalactic Star Clusters: Speculations on the Future	745
<i>J. S. Gallagher and E. K. Grebel</i>	
Conference Summary	755
<i>W. E. Harris</i>	

Memorable Quotes	763
Author Index	765
Subject Index	770