

TABLE OF CONTENTS

PREFACE	xix
THE ORGANIZING COMMITTEES	xxi
ACKNOWLEDGEMENTS	xxii
LIST OF PARTICIPANTS AND KEY TO PHOTOGRAPHS	xxiv
CONFERENCE PHOTOGRAPHS	xxviii

I STAR FORMING PROCESSES IN THE SOLAR NEIGHBORHOOD

I-a Star Formation in Dark Clouds

Star Formation: From OB Associations to Protostars (C.J. Lada)R*	1
IRAS and Star Formation in Dark Clouds (J.P. Emerson)I	19
Dense Cores and Young Stars in Dark Clouds (P.C. Myers)I	33
Repeated Multiple-Frequency VLA Surveys of the ρ Ophiuchi Cloud (T. Montmerle, P. André, E.D. Feigelson, P. Stine, J. Bouvier)O	45
Magnetic Field Structure in Dark Clouds (M. Tamura, T. Nagata, S. Sato, M. Tanaka, N. Kaifu, J. Hough, I. McLean, I. Gatley, R. Garden, M. McCaughrean)O	48
Observation of the Large Scale Structures of Dark Clouds (Y. Tomita)O	51
Measurement of Magnetic-Field Strengths in Molecular Clouds: Detection of OH Line Zeeman Splitting (I. Kazès, R.M. Crutcher, T.H. Troland)O	55
A Historical Review of Star Formation: Observation and Theory (K.R. Lang)P	57
A Study of Interstellar Ultraviolet Extinction in OB Associations and Star-Forming Regions (S. Aiello, B. Barsella, G. Chlewicki, J.M. Greenberg, P. Patriarchi, M. Perinotto)P	58

*R = Invited Review, I = Invited Presentation, O = Oral Contribution,
P = Poster Contribution.

Detection of T-Tauri Star Candidates in the Canis Major Star-Forming Region and its Implications (S.D. Wiramihardja, T. Kogure, M. Nakano, S. Yoshida)P	60
Stellar Kinematics in Star-Forming Regions (R.D. Mathieu)P	61
A Survey of the M17SW Giant Molecular Cloud for H-alpha Emission Stars (M. Shinohara, K. Ogura)P	62
Evidence of Collective Formation of Low Mass Stars in the Dark Cloud Kh141 (Y. Tomita, H. Ohtani)P	64
A Southern Hemisphere Ammonia Survey (W.L. Peters, J.R. Forster, F.F. Gardner, J.B. Whiteoak, T.B.H. Kuiper)P	66
21 cm Line Study of Large Scale Density Fluctuations in the Taurus Molecular Complex (W.L.H. Shuter, R.L. Dickman, C. Klatt)P	67
Star Formation in Taurus, the IRAS View (S. Harris)P	68
T-Tauri Stars in Taurus: Infrared Analysis of the IRAS Sample (S. Harris, J. Hughes)P	69
^{13}CO ($J = 1-0$) Observations of the Filaments in the ρ Oph Dark Cloud (A. Mizuno, Y. Fukui)P	69
Solar System Size Proto-Stellar Sources Embedded in the ρ Oph Dark Cloud (H. Zinnecker, A. Chelli, C. Perrier)P	71
Infrared CO Emission from WL16 (R.I. Thompson)P	74
CO, ^{13}CO , and HCN ($J = 1-0$) Observations of L1204 (S140) (K. Sugitani, Y. Fukui)P	75
CO Observations of B361 and its Environment (N. Hirano, T. Hasegawa, O. Kameya, K. Takakubo, M. Seki)P	76
Cyanoacetylene Observations of B335 (T. Hasegawa, O. Kameya, N. Hirano, M. Seki, K. Takakubo)P	78
CO Observations of a Cometary Globule in IC1396 (M. Nakano, Y. Tomita, H. Ohtani, K. Ogura, Y. Sofue)P	78
CO Observations of Draco Clouds, Unusual High Latitude Clouds (Y. Ohashi, Y. Fukui, T. Iwata)P	80
A New Molecular Core in L1641 (H. Takaba, Y. Fukui)P	81
An Optical Polarization Study of the Bok Globule B361 (M. Seki, T. Hasegawa)P	82

The Lynds 204 Complex: Magnetic Field Controlled Evolution? (W.H. McCutcheon, F.J. Vrba, R.L. Dickman, D.P. Clemens)P	84
The Magnetic Field Structure of the CMa R1 Star Formation Region (F.J. Vrba, R. Baierlein, W. Herbst)P	85
Comparison of CO and IR Emission of IRAS Unidentified Sources (F. Boulanger, F. Casoli, F. Combes, Ch. Dupraz, M. Gérin)P	86
Temperature Fluctuations and Evolution of Dust Grains in Dense Interstellar Clouds (S. Aiello, B. Barsella, C. Cecchi-Pestellini, F. Ferrini, F. Mencaraglia, A. Rosolia)P	88
Dynamic Structure of the Horsehead Nebula (H. Suzuki, N. Kaifu, M. Ohishi, T. Miyaji, S. Ishikawa)P	90
Laboratory Microwave Spectroscopy of Interstellar Molecules (S. Saito)P	92
 <u>I-b Regions of Massive Star Formation</u>	
Recent Ideas on the Formation of Massive Stars in our Galaxy (D. Downes)R	93
The Orion Nebula and the Sun as Probes of Galactic Chemical Evolution (M. Peimbert)I	111
The Orion Star-Forming Complex (T. Hasegawa)I	123
Fluorescent Line Emission of Molecular Hydrogen (J.H. Black, E.F. van Dishoeck)O	139
Induced Star Formation in M17: High Resolution NH ₃ and IR Observations (M. Felli, M. Massi, R. Stanga, E. Churchwell)O	141
The Most Luminous Star Formation Regions in the Galaxy (D.T. Jaffe, R. Genzel, D.A. Harper, A.I. Harris, P.T.P. Ho)O	143
Massive Star Formation in W49 (J. Dreher, S. Vogel, S. Terebey, W.J. Welch)O	143
¹² C ¹⁸ O in OMC-1: Kinematics, Molecular Column Density, and Kinetic Temperature Distribution (T.L. Wilson, E. Serabyn, C. Henkel, C.M. Walmsley)O	145
Images of Star Forming Regions in CO and H ₂ (I. Gatley)O	146

Relation Between Physical Environment and its Chemistry in Orion KL (M. Ohishi, N. Kaifu, H. Suzuki, T. Miyaji, M. Morimoto)P	146
¹³ CO (J= 1-0) Observations of the Orion Molecular Cloud (K. Sugitani, Y. Fukui)P	149
The Shocked Molecular Gas in the Orion Bright Bar (T. Omodaka, M. Hayashi, T. Hasegawa, I. Gatley)P	150
The Submillimetre Wavelength Spectrum of Orion A (G.J. White, T. Monteiro, R. Rainey, K. Richardson, M. Griffin, L. Avery)P	153
Two Dimensional Models for the Orion Nebula and M17 (R.H. Rubin, J.P. Simpson, E.F. Erickson, M.R. Haas)P	154
A Submillimetre CO J = 3-2 Study of M17: The Interaction of an Ionization Front and a Molecular Cloud (R. Rainey, G.J. White, I. Gatley, S.S. Hayashi, N. Kaifu, M. Griffin, N. Cronin)P	155
Molecular Line Observations in Sgr B2 (M. Morimoto, M. Ohishi, T. Kanzawa)P	156
The Sgr B2 Region Seen at 43 GHZ (H. Hirabayashi, K. Akabane, M. Morimoto, Y. Sofue, M. Inoue)P	158
Masers in SGR B2: Sites of Star-Forming Regions (J.B. Whiteoak, F.F. Gardner, J.R. Forster, P. Palmer, V. Pankonin)P	161
Clumpy Structure in the W3 Molecular Core (H. Kobayashi, M. Hayashi, T. Hasegawa)P	163
Millimeter-Wave Mapping of the W3 Core Region at 4 and 6.5 mm (K. Akabane, H. Hirabayashi, Y. Sofue)P	167
The Structure of the W49A Molecular Cloud Complex: Burst of Star Formation in the $10^5 M_\odot$ Core (R. Miyawaki, M. Hayashi, T. Hasegawa)P	170
Characteristics of H ₂ CO Towards Star-Forming Regions (H.R. Dickel, W.M. Goss, A.H. Rots)P	171
CO J = 3-2 and 4-3 Observations of Molecular Clouds (G.J. White, R. Rainey, L. Avery, P. Phillips, M. Griffin, T. Monteiro, K. Richardson, N. Cronin, R. Harten)P	172

Sub-Millimeter Spectral Line Observations in Very Dense Regions (N.J. Evans II, L.G. Mundy, J.H. Davis, P. Vanden Bout)P	173
Relationship of OH and H ₂ O Masers (J.R. Forster, J.L. Caswell)P	174
The Rotational Excitation of OH in Orion (E.F. van Dishoeck, G.J. Melnick, J.H. Black)P	176
SiO Masers in the Star Forming Regions W51 IRS2 and Sgr B2 MD5 (N. Ukita, T. Hasegawa, N. Kaifu, K.-I. Morita, S. Okumura, H. Suzuki, M. Ohishi, M. Hayashi)P	178
The Populations of H ₂ Vibrational States in Intense UV Fields Near O-B Stars (P.E. Dewdney, R.S. Roger, N. Robert)P	179
Shocked Molecular Hydrogen from Star Forming Regions (A.P. Lane, J. Bally)P	181
Near-IR Observations of the Sharpless Regions S269, S271, S307 and S311 (M. Ferrari-Toniolo, P. Persi, K. Shivanandan, L. Spinoglio)P	181
New Infrared Observations of NGC 3603 (M. Roth, M. Tapia, M.T. Ruiz, P. Persi, M. Ferrari-Toniolo)P	182
VLA Search for Optically Thick H II Regions in Luminous Embedded Infrared Sources (P.T.P. Ho, T.N. Rengarajan)P	185
Protostellar Candidates in W75N (C.M. Mountain, I. Gatley, T.W. Hartquist, S.K. Leggett, M.J. Selby)P	187
Near-Infrared Sources in the Complex H II Region NGC 6357 (P. Persi, M. Ferrari-Toniolo, M. Roth, M. Tapia)P	187
The Star Formation Region Associated with the Cometary Nebula GM24 (M. Tapia, M. Roth, L.F. Rodríguez, J. Cantó, P. Persi, M. Ferrari-Toniolo, J.A. López)P	188
The Dust Cavity Around the Exciting Star of Small H II Regions (S. Yoshida, S. Mizuno, M. Nakano, T. Kogure, T. Sasaki, S.D. Wiramihardja)P	189
A Study of Continuum Emission at 3.5 mm from Selected H II Regions (M.A. Gordon, P.R. Jewell, M.A. Kaftan-Kassim, C.J. Salter)P	190
Small Galactic Nebulae (Y. Terzian, K.C. Turner)P	191

Mon R2: A Blister Type H II Region (M. Massi, M. Fellini, M. Catarzi, M. Simon)P	193
A Giant Stellar-Wind Shell and Star Formation Near the H II Region M16 (Y. Sofue, T. Handa, E. Fürst, W. Reich, P. Reich)P	194
S 201: The Ionized Skin of a Molecular Blob (M. Fellini, R. Cesaroni, R.M. Hjellming)P	196
Expansion of Ultra-Compact H II Regions (J.M. Moran, M.J. Reid, B. Sams)P	197
Hollow H II Regions: From Giant to Ultracompact (T. Montmerle, H. Dorland, C. Doom)P	198
Stellar Associations and Regions of Star Formation (L.V. Mirzoyan)P	200
Spectra of Fast J-Shocks in Dense, Star-Forming Regions (C.F. McKee, D.J. Hollenbach, T. Jernigan)P	202
Evolutionary Models of the Dissociation Zones Surrounding H II Regions (R.S. Roger, P.E. Dewdney)P	203
The Stellar Content of SCO OB2 (E. de Geus, T. de Zeeuw)P	205
A Study of Shock Excited Gas in the Supernova Remnant IC443 (G.J. White, R. Rainey, S. Hayashi, N. Kaifu)P	207
Star Formation and Supernovae (T.N. Rengarajan, R.P. Verma, K.V.K. Iyengar)P	208
Observational Data on Star Formation in Cepheus A(V.A. Hughes)P	210
CO and CS Observations in the Eastern Part of W5 (S. Wramdemark, G. Lynga, L.E.B. Johansson)P	211
 <u>I-c Bipolar Flow Protostellar Activities and Protostellar Disks</u>	
Bipolar Outflows and Stellar Jets (R.L. Snell)R	213
Disks and Toroids Around Young Stars (L.F. Rodríguez)R	239
Mass Outflows Associated with Young Stellar Objects (S.E. Strom, K.M. Strom)I	255
Observed Characteristics of Protostellar Disks (N. Kaifu)I	275

Hollow Cylindrical Lobes with a Helical Velocity Field of the L1551 Bipolar Flow (Y. Uchida, N. Kaifu, K. Shibata, S.S. Hayashi, T. Hasegawa)I	287
The Formation of Planets Around Stars of Various Masses and the Origin and the Evolution of Circumstellar Dust Clouds (T. Nakano)I	301
High Velocity OH in Bipolar Flows (I.F. Mirabel)I	315
An extremely Luminous H ₂ Flow in the DR21 Star Forming Region (R.P. Garden)O	325
High Velocity CO Wings in NGC 2071 and GL 490 Observed with the 45-m Telescope (Y. Fukui, T. Iwata, T. Takano)O	328
High Resolution Studies of Star-Forming Molecular Clouds (A.I. Sargent, N.Z. Scoville, C.R. Masson, K.Y. Lo, T.G. Phillips)O	329
Polarization Observations in the Near Infrared as a Probe of Bipolar Flow Regions (I.S. McLean)O	330
Masers in Starforming Regions (R.J. Cohen)O	333
Models of Shock Activity in the BN-KL Region of Orion (D. Hollenbach, C. McKee, D. Chernoff)O	334
Star Formation and Bipolar Flows (R.E. Pudritz)O	336
H α and [S II] Direct Images of Herbig-Haro Objects 1 and 2 with the Mepsicron Detector (J. Echevarría, J. Bohigas, J. Torrelles, J. Cantó)P	340
The Structure of the HH39 Region (J.R. Walsh)P	340
New Herbig-Haro Objects Found by a New Method (K. Ogura)P	341
IR Line and Continuum Emission from Bipolar Outflow Sources (H.A. Smith, J. Fischer, D. Mozurkewich, P.R. Schwartz, T.R. Geballe)P	343
Models for the Emission-Line Spectra of the Low-Excitation Herbig-Haro Objects (M.A. Dopita, S. Caganoff, R.D. Schwartz, M. Cohen)P	346
Jets from Low Mass Accreting Stars (F.D. Kahn)P	348
Observations of Molecular Flows in S140 and L723 (S.S. Hayashi, M. Hayashi, Y. Uchida, N. Kaifu, T. Hasegawa, K. Shibata)P	348

Molecular-Line Studies of the Bipolar Flow Source GL490 (R. Kawabe, N. Kaifu, S.S. Hayashi, T. Hasegawa)P	352
CO Observations of High-Velocity Flows in the Core of the NGC 7538 Molecular Cloud (O. Kameya, T. Hasegawa, N. Hirano, K. Takakubo, M. Seki)P	355
A New CO Outflow Source near NGC 2071 (T. Iwata, Y. Fukui)P	357
CO Molecular Clouds in the Region of GL490 (H. Moriguchi, Y. Fukui)P	358
S106-IRS4: A Star Loosing Mass in the Centre of a Bipolar Nebula (M. Felli, M. Simon)P	359
Hydrogen Cyanide in the Bipolar Source CEP A (L. Weliachew, D.T. Emerson, T. Forveille, J.H. Bieging, M.C.H. Wright, J. Ellder)P	360
Role and Evolution of Ammonia Clouds in Bipolar Flow Sources (T. Takano, J. Stutzki, Y. Fukui, G. Winnewisser)P	361
The Star Forming Region in Bok Globule 210-6a (T.B.H. Kuiper, W.L. Peters III, F.F. Gardner, J.B. Whiteoak)P	364
CS (J = 2-1) Observations of B335 (O. Kameya, T. Hasegawa, N. Hirano, K. Takakubo, M. Seki)P	366
The Circumstellar Environment of LkH α 234 (B.A. Wilking, L.G. Mundy, R.D. Schwartz)P	368
The Molecular Observations of the Central Part of the S106 Molecular Cloud (N. Kaifu, S.S. Hayashi)P	369
Diffraction-Limited Far-Infrared Imaging of "Protostars" (P.M. Harvey, D.F. Lester, M. Joy)P	371
Infrared Structure of OMCI (Y. Nakada)P	372
Polarization Mapping of Infrared Reflection Nebulae (T. Nagata, T. Yamashita, S. Sato, M. Tanaka, S. Suzuki, N. Kaifu, I. McLean, J. Hough, I. Gatley, R. Garden)P	374
Interaction of Protostellar Winds with the Orion Molecular Cloud (T. Okuda)P	375
Equilibrium and Collapse of Rotating Isothermal Clouds (S. Narita, M. Kiguchi, S.M. Miyama, C. Hayashi)P	377

Hydrodynamical Simulation of Bipolar Flows (F. Claussen, F. Combes)P	378
Are Bipolar Jets Precessing? (J. Fukue, T. Yokoo)P	379
A Helical Magnetic Field Model of the Jets (T. Maruyama, M. Fujimoto)P	381
Collimation of Stellar Winds by the Magnetic Field (T. Sakurai)P	383
Magnetic Field Amplification and Polar Jet Formation in Protostars (S. Hinata)P	384
Sweeping-Magnetic-Twist Mechanism and Molecular Bipolar Flows (K. Shibata, Y. Uchida)P	385
Electromagnetic Jets Driven by Accretion Disks (O. Kaburaki, M. Itoh)P	388
Formation of Bipolar Flows in Star Forming Regions by Stellar Winds (H. Hanami, S. Sakashita)P	391
The Effect of the Gravity of a Circumstellar Torus on Bipolar Jets (J. Fukue)P	394
Elongated Structures Near Young Stars: Jets or Projection Effects? (J. Cantó, A. Sarmiento, L.F. Rodríguez)P	396
The Energy Source of HH34 and its Highly Collimated Jet (B. Reipurth, J. Bally, J.A. Graham, A.P. Lane, W.J. Zealey)P	396
Wind Properties of Young Stars (N. Panagia)P	398
A Mechanism for Variability of Cometary Nebulae (G.M. Rudnitskij)P	398
High Resolution CO Observations of the Bipolar Nebula CRL2688 (R. Kawabe, T. Kasuga, M. Ishiguro, K.-I. Morita, N. Ukita, H. Kobayashi, S. Okumura, E.B. Fomalont, N. Kaifu)P	400
<u>I-d Scenario of Star Formation</u>	
Equilibria and Dynamics of Isothermal Clouds (C. Hayashi)R	403
Star Formation in Molecular Cloud Cores (F.H. Shu, S. Lizano, F.C. Adams)I	417

Gravitational Instability of Rotating Gaseous Disks with Magnetic Fields (T. Nakamura, T. Iwata)O	435
Formation of OB Stars by Radiatively-Driven Implosion (R.I. Klein, C.F. McKee, M.T. Sandford, R. Whitaker, P.T.P. Ho)O	435
3D Simulation of Interstellar Cloud Collision and Triggered Star Formation (M. Nagasawa, S.M. Miyama)O	438
On Early Evolution of Accreting Stars (B.M. Shustov, A.V. Tutukov)O	440
The Gem OB1/IC443/S249 Complex: A Case History of Stellar Evolution (R. Braun, R.G. Strom)P	442
A New Theory of Star Formation: Analytical Mass Function and Star Formation Rate (A. Di Fazio)P	442
Structure and Fragmentation of Molecular Complexes (E. Falgarone, J.L. Puget, M. Péault, S. Bonazzola, J. Heywaerts)P	443
Star Formation Induced by Supersonic Turbulence (M. Tosa, Y. Sabano)P	444
Star Formation Driven by Thermal-Chemical Instability in a Pre-Galactic Gas Cloud (Y. Sabano, M. Tosa)P	446
A Single Fragmentation Law? Theoretical and Observational Evidence (A. Di Fazio, R. Capuzzo Dolcetta)P	448
Fragmentation of Isothermal Sheet-Like Clouds (S.M. Miyama, S. Narita, C. Hayashi)P	451
Resolution of the Angular Momentum and Magnetic Flux Problems During Star Formation, and Observational Consequences (T.C. Mouschovias)P	452
Dissipation of Magnetic Fields in Very Dense Interstellar Clouds and the Magnetic Flux of a Newborn Star (T. Umebayashi, T. Nakano)P	454

II. LARGE SCALE PROCESSES OF STAR FORMATION

II-a Distribution of Star Formation in the Galactic Disk and the Magellanic Clouds

Large Scale Star Formation: Density Waves, Superassociations and Propagation (B.G. Elmegreen)R	457
Star Formation in Outer Galaxy Molecular Clouds (M.L. Kutner)I	483

The Bell Laboratories CO Survey: Star Formation in Spiral Arms (A.A. Stark, J. Bally, G.R. Knapp, A. Krahnert, A.A. Penzias, R.W. Wilson)O	495
Giant Molecular Clouds in the Galaxy: The Massachusetts- Stony Brook CO Galactic Plane Survey (P.M. Solomon)O	499
The Structure of the Interstellar Medium and Star Formation in the Magellanic Clouds (M.A. Dopita)R	501
Star Formation in the Large Magellanic Cloud (J.V. Feitzinger)I	521
Density Wave Related Molecular Cloud Spiral Arms in M51 (G. Rydbeck, Å. Hjalmarson, L.E.B. Johansson, O.E.H. Rydbeck)O	535
A 10-GHZ Radio Continuum Survey of the Galactic Plane (T. Handa, Y. Sofue, N. Nakai, H. Hirabayashi, K. Akabane, M. Inoue)P	538
Dynamics of Giant Molecular Clouds in the Density Wave Potential (M. Fukunaga, M. Tosa)P	539
Formation of Giant Molecular Clouds by Coagulation of Small Molecular Clouds in a Spiral Gravitational Potential (K. Tomisaka)P	541
How Many Star-Forming Regions are there in the Milky Way? (L.O. Lodén)P	544
Abundances of Classical Cepheids and Evidence for Secondary Star-Formation (S. Giridhar)P	545
New Results on the Coagulation Equation (P. Bastien, C. Lejeune)P	547
A Model for Self-Regulating Star Formation (T. Wiklind)P	548
Molecular Clouds and Star Formation Near the Galactic Center (J. Bally, A.A. Stark, R.W. Wilson)P	550
Sequential Star Formation inside the Young Stellar Associations of the Magellanic Clouds (M.C. Lortet, G. Testor, V. Niemela, M. Heydari-Malayeri)P	551
Young Stellar Objects in the Large Magellanic Cloud (N. Epcstein, M.A. Braz)P	552
The Underlying Population in Young Stellar Systems (I. Tarrab, G. Bruzual)P	553

The Distance to the Center of the Galaxy (M.J. Reid, M.H. Schneps, J.M. Moran, C.R. Gwinn, R. Genzel, D. Downes, B. Ronnang)P	554
Infrared Triplet in the Radio Arc Near the Galactic Center (H. Okuda, H. Shibai, Y. Kobayashi, N. Kaifu, M. Hayashi, T. Nagata, I. Gatley)P	556
<u>II-b Star Formation and Starburst Galaxies</u>	
Molecular Clouds in External Galaxies and the Efficiency of Star Formation (J.S. Young)R	557
Bursts of Star Formation in Galaxies (C.G. Wynn-Williams)R	587
Hyperactive Star Bursts in Clumpy Irregular Galaxies (J. Heidmann)I	599
Star Formation in Normal Irregular Galaxies (D.A. Hunter)O	611
Star Formation in Barred Galaxies (C.M. Mountain, T.G. Hawarden, R.D. Joseph, S.K. Leggett, P.J. Puxley)O	612
The Interstellar Medium in Star Burst Galaxies (R. Genzel, J.B. Lugten, M.K. Crawford, D.M. Watson)O	614
A 200 pc Ring of Molecular Gas and an Outburst in the Galaxy M82 (N. Nakai, M. Hayashi, T. Hasegawa, Y. Sofue, T. Handa, M. Sasaki)O	614
Molecular Gas in the Nucleus of M82 (K.Y. Lo, K.W. Cheung, C.R. Masson, T.G. Phillips, N.Z. Scoville, D.P. Woody)P	620
Disk Galaxies: The Global Properties of Star Formation and the Chemical Abundance Gradients (M.A. Dopita, I.R. Evans)P	621
Star Formation in the Southern Spiral Arm of M31 (T. Ichikawa, M. Nakano, Y.D. Tanaka)P	622
Star Formation in the Spiral Galaxy M33 (F. Viallefond)P	624
Star Formation in M81 (F. Bash, M. Kaufman)P	626
Radio Continuum Observations of the Barred Galaxy NGC 4314 (J.A. García-Barreto, P. Pismis)P	626
Large Scale Dissociation of Molecular Gas and Star Formation in M83 (R.J. Allen, P.D. Atherton, R.P.J. Tilanus)P	628
CO Observations of the Central Bar of M83 (T. Handa, Y. Sofue, N. Nakai, M. Fujimoto, M. Hayashi)P	628

CO Observations of the Nuclear Bar of IC 342 (M. Hayashi, T. Handa, Y. Sofue, N. Nakai, T. Hasegawa, S. Lord, J. Young)P	631
Molecular Clouds in Barred Galaxies (F. Combes, M. Gérin)P	632
Anemic Galaxies: Evidence for a Threshold in Star Formation Processes (B. Guiderdoni)P	633
A Neutral Hydrogen Cloud in the Vicinity of the Elliptical Galaxy NGC 4318 (L. Bottinelli, D. Fraix-Burnet, L. Gouguen- heim)P	634
NGC 2363, A Giant Extragalactic H II Region (M. Peimbert, M. Peña, S. Torres-Peimbert)P	635
MRK 273: A New OH Megamaser (L. Bottinelli, D. Fraix-Burnet, L. Gouguenheim, I. Kazès, A.M. Le Squeren, I. Patey, L.J. Rickard, B.E. Turner)P	636
A New Strong Extragalactic OH Megamaser in the Infrared Source IRAS 17208 -0014 (L. Bottinelli, M. Dennefeld, L. Gouguenheim, J.M. Martin, G. Paturel, A.M. Le Squeren)P	638
Infrared Luminosities of Markarian Starburst Galaxies (S.P. Willner, L.K. Deutsch)P	640
Star Formation in Nuclei of Early-Type Galaxies (B. Rocca- Volmerange, B. Guiderdoni)P	642
U-G and G-R Colors of the Clumpy Irregular Galaxies Markarian 297 and 325 (S. Tamura, J. Heidmann)P	642
High-Dispersion Spectroscopy of the Clumpy Irregular Galaxies Markarian 297 and 325 (Y. Taniguchi, S. Tamura)P	644
Far-Infrared Emission from Clumpy Irregular Galaxies (U. Klein, J. Heidmann, R. Wielebinski, E. Wunderlich)P	647
Photometric, Spectroscopic and 21-cm Line Investigation of Selected UV-Excess KISO and Clumpy Galaxies (L. Botti- nelli, L. Gouguenheim, M. Hamabe, J. Heidmann, H. Maehara, B. Takase)P	648
Numerical Simulations of Star Formation Bursts Induced by the Galaxy-Galaxy Interaction (M. Noguchi, S. Ishibashi)P	650
CO Observations of Bright IRAS Galaxies (D.B. Sanders)P	653
CCD Echellogram of the Starburst Galaxy Tol 1924-416 (M. Iye)P	654

A Survey and Follow-up Observations of Starburst Galaxies (H. Maehara, B. Takase, J. Heidmann)P	655
FIR and Blue Luminosities and Gas Mass in Spiral Galaxies (T.N. Rengarajan, R.P. Verma)P	657
CO in NGC 5055 (L.E.B. Johansson, R.S. Booth)P	659
CO Observations of the Spiral Galaxy IC 342 (T. Wiklind, G. Rydbeck, A. Hjalmarson, O.E.H. Rydbeck)P	660
<u>II-c Star Formation and Galactic Evolution</u>	
Star Formation and Galactic Evolution: From Protogalaxies to Starbursts (J. Silk)R	663
Evolution of Galaxies with Periodic Star Formation (S. Ikeuchi)I	691
The Chemical Evolution of the Galactic Halo and Disk (F. Ferrini, F. Palla, S.N. Shore)P	701
<u>II-d Other Papers</u>	
Current Work on Starforming Regions at UKIRT (C.M. Mountain)P	705
The New 4-m Millimeter Wave Telescope at Nagoya (K. Kawabata)P	706
Development of Millimeter Low-Noise Receivers at Nagoya University (H.Ogawa, A. Mizuno, Y. Fukui, K. Okuyama)P	708
III. OVERVIEW	
Summary (R. Genzel)R	709
General Discussion	719
IV. INDEXES	
Author Index	723
Key Word Index	729
Object Index	739

