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Astrophysical Masers

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PREFACE

The first conference devoted exclusively to astrophysical masers was held in Arlington, Virginia, 9–11 March 1992. The 113 participants included scientists from Australia, Brazil, Canada, England, Finland, France, Germany, Greece, Italy, Japan, Russia, South Africa, Spain, Sweden, and the United States. More than 100 talks and posters were presented during the three-day conference.

In March 1991, when conference planning began, we hoped to attract as many as 50 astronomers with an interest in masers. It was a pleasant surprise when, in the last few months before the conference, it became apparent that the attendance would far exceed our expectations. The large number of conference participants shows that there is currently an extraordinarily high level of interest within the astronomical community in the study of masers. One reason, perhaps, is the wide range of astrophysical phenomena with which masers are associated: extragalactic astronomy, star formation, stellar evolution, the interstellar medium, and solar system physics, to name a few. The papers in this volume include contributions on all of these topics.

This book serves at least two purposes. First, it is a review of research on astrophysical masers since their discovery more than 27 years ago. The early years of maser research are recalled by Charles Townes in a transcript of his after-dinner talk. Additional review papers cover each major field of study. Second, it is a record of the current state of maser research, presented in 94 articles covering the latest observational and theoretical results. The quality and volume of the contributions insure that these proceedings will be an important addition to the astronomical literature.

We would like to express appreciation to several people for assistance in organizing the conference. The scientific organizing committee, comprised of R. Booth, R. J. Cohen, S. Deguchi, M. Elitzur, R. Genzel, K. J. Johnston, J. Moran, R. Norris, V. S. Strel'nitski, C. H. Townes, W. D. Watson, and T. Wilson, provided valuable advice and, through their contacts, made possible a truly international gathering of scientists. Ken Johnston and Phil Schwartz were especially helpful in all stages of conference planning, and were responsible for attracting financial support. Others who helped insure that the meeting ran smoothly include Kristin Clegg and Jo-Ann Clegg, two experts in conference organization; and Al Fey

and Schuyler Van Dyk, who provided scientific and technical assistance. Kathy Cowan and Pat Tetrault furnished administrative support at NRL. We are particularly grateful to Amahl Drake for assistance in travel arrangements for the Russian participants—no small feat considering the Soviet Union existed when we began planning the meeting, but had disappeared by the time the meeting was held. The conference was sponsored by the Naval Research Laboratory and by NASA. We are grateful to both organizations for their support. We also acknowledge support from the National Research Council through the NRC/NRL Cooperative Research Associateship program. Lastly, we thank all of the participants for providing the subject matter for a very stimulating conference.

Naval Research Laboratory
Washington, D.C.
September 1992

Andrew W. Clegg
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CONTENTS

1. HISTORY

THE EARLY YEARS OF RESEARCH ON ASTRONOMICAL MASERS <i>C. H. Townes</i>	3
---	---

2. THEORY

ON THE THEORY OF NATURAL MASERS <i>V. S. Strel'nitski</i>	15
LINE PROFILES IN MASERS: VELOCITY RELAXATION <i>N. Anderson and W. D. Watson</i>	25
OH MASER POLARIZATION <i>S. Deguchi and W. D. Watson</i>	29
COHERENCE AND INCOHERENCE IN ASTRONOMICAL MASERS <i>M. Elitzur</i>	33
A MODEL FOR POLARIZED OH MASERS <i>M. D. Gray</i>	37
SUBMILLIMETER WATER MASERS <i>G. J. Melnick</i>	41
LINEAR AND CIRCULAR POLARIZATION FOR MASERS WITH WEAK ZEEMAN SPLITTINGS <i>G. E. Nedoluha and W. D. Watson</i>	47
RADIATIVE TRANSFER IN THREE-DIMENSIONAL MASERS <i>D. A. Neufeld</i>	51
A SPECIAL DATABASE FOR GAS-PHASE COMPOUNDS STUDIED BY MICROWAVE SPECTROSCOPY AND RADIO ASTRONOMY <i>J. Vogt</i>	55

3. MASER SURVEYS

CLASSIFICATION AND STATISTICAL PROPERTIES OF H ₂ O MASERS <i>R. Cesaroni, G. Comoretto, M. Felli, V. Natale, and F. Palagi</i>	61
--	----

OBSERVATIONS OF NEW SUBMILLIMETER MASER LINES OF WATER AND METHANOL	
<i>P. A. Feldman, H. E. Matthews, T. Amano, F. Scappini, and R. M. Lees</i>	65
THE CRL 34-M RADIO TELESCOPE AT KASHIMA — A NEW STRONG TOOL IN MASER RESEARCH — AND THE FIRST RESULTS OF A 22 GHz H ₂ O MASER SURVEY	
<i>H. Takaba, T. Iwata, T. Miyaji, N. Kawaguchi, and M. Morimoto</i>	67
4. EXTRAGALACTIC MASERS	
MOLECULAR MEGAMASERS AFTER TEN YEARS	
<i>W. A. Baan</i>	73
VLBI OBSERVATIONS OF THE WATER VAPOR MEGAMASER IN IC10	
<i>A. L. Argon, M. J. Reid, J. M. Moran, K. M. Menten, C. Henkel, L. J. Greenhill, C. Gwinn, H. Hirabayashi, and M. Inoue</i>	83
EXTRAGALACTIC H ₂ O MASERS	
<i>L. J. Greenhill</i>	87
H ₂ O MEGAMASER VARIABILITY	
<i>A. D. Haschick and W. A. Baan</i>	91
5. MASERS IN STAR-FORMING REGIONS (GENERAL)	
INTERSTELLAR MASERS: THEN AND NOW	
<i>N. Anderson and R. Genzel</i>	97
SOME INTERESTING OH/H ₂ O MASERS	
<i>J. R. Forster</i>	108
HIGH RESOLUTION CENTIMETER RADIO CONTINUUM AND AMMONIA MASER OBSERVATIONS OF THE W51 REGION OF STAR FORMATION	
<i>R. A. Gaume, K. J. Johnston, and T. L. Wilson</i>	112
MASERS IN STAR-FORMING REGIONS ASSOCIATED WITH COLD, BRIGHT IRAS SOURCES	
<i>G. C. MacLeod, M. J. Gaylard, E. Scalise, Jr., and V. A. Hughes</i>	116
CH IN TRANSLUCENT MOLECULAR CLOUDS	
<i>L. Magnani</i>	120
AMMONIA MASERS IN THE INTERSTELLAR MEDIUM	
<i>T. L. Wilson and P. Schilke</i>	123

6. OH MASERS IN STAR-FORMING REGIONS

OH MASERS IN STAR-FORMING REGIONS: INTERPRETATION OF OBSERVATIONS

M. D. Gray, K. N. Jones, R. C. Doel, D. Field, and R. N. F. Walker 129

EXCITED OH 4.7 GHz MASERS ASSOCIATED WITH IRAS FAR-INFRARED SOURCES

M. R. W. Mashedor, R. J. Cohen, J. L. Caswell, R. N. F. Walker, and M. Shepherd 133

THE MAGNETIC FIELD OF THE MILKY WAY: OH MASER ZEEMAN RESULTS

M. J. Reid and K. M. Menten 137

OH MASERS AND BIPOLAR MOLECULAR OUTFLOWS ASSOCIATED WITH MASSIVE STAR FORMATION

D. O. S. Wood 141

7. WATER MASERS IN STAR-FORMING REGIONS

H₂O MASER SURVEY OF IRAS SOURCES AT HIGH GALACTIC LATITUDE

P. Caselli, C. Codella, G. G. C. Palumbo, and G. Pareschi 147

WATER MASERS ASSOCIATED WITH COMPACT MOLECULAR CLOUDS AND ULTRACOMPACT H_{II} REGIONS: THE EXTENDED SAMPLE

R. Cesaroni, G. Comoretto, M. Felli, F. Palla, J. Brand, and P. Caselli 151

MOLECULAR OUTFLOWS AND H₂O MASERS: WHAT TYPE OF CONNECTION?

M. Felli, F. Palagi, and G. Tofani 155

A SHOCK ORIGIN FOR INTERSTELLAR H₂O MASERS

D. Hollenbach, M. Elitzur, and C. F. McKee 159

WATER MASER EMISSION TOWARD ULTRACOMPACT H_{II} REGIONS

P. Hofner and E. Churchwell 164

INTERACTING H₂O MASERS IN STAR-FORMING REGIONS

N. D. Kylafis and K. G. Pavlakis 168

ORIGIN OF WATER MASERS IN W49N

M.-M. Mac Low and M. Elitzur 172

VLBI OBSERVATIONS OF THE H ₂ O SUPERMASER OUTBURST IN THE ORION NEBULA	
<i>L. I. Matveyenko, P. J. Diamond, D. A. Graham, and W. Junor</i>	176
THE ZEEMAN EFFECT OR LINEAR BIREFRINGENCE? — VLA POLARIMETRIC SPECTRAL LINE OBSERVATIONS OF H ₂ O MASERS	
<i>J.-H. Zhao, W. M. Goss, and P. Diamond</i>	180
8. METHANOL MASERS IN STAR FORMING REGIONS	
THE ARCETRI METHANOL VLBI RECEIVER	
<i>M. Catarzi and L. Moscadelli</i>	187
A STUDY OF METHANOL MASERS AT 36 AND 44 GHz AND 48 GHz THERMAL EMISSION AROUND THEM	
<i>S. V. Kalenskii, I. I. Berulis, I. E. Val'ts, V. I. Slysh, R. Bachiller, J. Gómez-González, J. Martín-Pintado, and A. Rodríguez-Franco</i>	191
METHANOL MASERS IN THE SOUTHERN GALAXY	
<i>G. C. MacLeod and M. J. Gaylard</i>	195
INTERSTELLAR METHANOL MASERS	
<i>K. M. Menten</i>	199
SYNTHESIS IMAGING OF 6.7 GHz METHANOL MASERS	
<i>R. P. Norris, J. B. Whiteoak, J. L. Caswell, and M. Wieringa</i>	203
PRODUCTION OF 12.2 GHz CH ₃ OH MASERS — PRELIMINARY RESULTS OF AN EXCITATION STUDY	
<i>R. Peng and J. B. Whiteoak</i>	207
INTERFEROMETRIC OBSERVATIONS OF 95 GHz METHANOL MASERS	
<i>P. Pratap and K. Menten</i>	211
ON THE CLASSIFICATION AND LIST OF TRANSITIONS OF METHANOL MASERS	
<i>A. M. Sobolev</i>	215
PHYSICAL AND EVOLUTIONARY STATUS OF G1.6-0.025 GIANT MOLECULAR CLOUD AS REVEALED BY 4 ₁₋₃ 0E METHANOL WEAK MASER	
<i>A. M. Sobolev</i>	219

9. PROPER MOTION

THE PROPER MOTIONS OF THE H ₂ O MASERS NEAR W3(OH) <i>J. Alcolea, K. M. Menten, J. M. Moran and M. J. Reid</i>	225
KINEMATIC STUDIES OF ULTRACOMPACT HII REGION/MOLECULAR CLOUD INTERFACES <i>E. E. Bloemhof</i>	229
SPACE VLBI AND THE MASERS <i>R. S. Booth</i>	233
PRELIMINARY RESULTS FROM A STUDY OF THE PROPER MOTION OF WATER VAPOR MASERS IN CEPHEUS A <i>T. V. Cawthorne, J. M. Moran, and M. J. Reid</i>	237
HIGH- AND LOW-VELOCITY MASER FEATURES <i>C. R. Gwinn</i>	239
PROPER MOTIONS OF OH MASERS IN W75N <i>V. Migenes and R. J. Cohen</i>	243
PROPER MOTION STUDIES OF H ₂ O MASERS <i>J. M. Moran, M. J. Reid, and C. R. Gwinn</i>	244

10. SCATTERING

INTERSTELLAR SCATTERING OF MASER RADIATION <i>J. M. Cordes</i>	251
A VLBI SURVEY OF INTERSTELLAR BROADENING OF GALACTIC OH MASERS <i>J. Hansen, R. S. Booth, B. Dennison, and P. J. Diamond</i>	255
ANGULAR WANDER MEASUREMENTS OF MASER CLUSTERS <i>R. L. Mutel</i>	259

11. VARIABILITY

THE POLARIZED WATER MASER SOURCE IN ORION <i>Z. Abraham and J. W. S. Vilas Boas</i>	267
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VARIATIONS OF OPTICAL AND WATER MASER EMISSION FROM LONG PERIOD VARIABLES <i>P. J. Benson, I. R. Little-Marenin, and R. R. Cadmus, Jr.</i>	271
AN H ₂ O FLARE IN W49N <i>D. A. Boboltz, J. H. Simonetti, P. J. Diamond, J. A. Uphoff, and B. Dennison</i>	275
TIME-VARIABLE OH EMISSION FROM S269 <i>A. W. Clegg</i>	279
VARIATIONS IN POLARIZATION OF IRAS 19566+3423 AT THE 1612 MHz OH LINE FROM 1987 TO 1992 <i>J. Galt</i>	283
THEORY OF FLUCTUATIONS IN UNSATURATED MASERS <i>M. J. Kaufman and D. A. Neufeld</i>	287
LONG-TERM OBSERVATIONS OF OUTBURSTS AND VARIABILITY OF THE W49N WATER MASERS <i>T. Liljeström</i>	291
WATER MASER AND OPTICAL VARIABILITY FOR V778 CYG AND EU AND 1987—1991 <i>I. R. Little-Marenin, P. J. Benson, and R. R. Cadmus</i>	295
SEARCH FOR RAPID VARIATIONS IN OH AND H ₂ O MASERS <i>D. Matsakis</i>	299
WATER MASER BURSTS IN W49N (1989—1992) <i>G. M. Pacheco and E. Scalise, Jr.</i>	303
RADIATIVE INSTABILITIES IN ASTROPHYSICAL MASERS <i>G. A. Scappaticci and W. D. Watson</i>	307
A MONITORING PROGRAM OF INTERSTELLAR OH AND H ₂ O MASERS <i>J. H. Simonetti, P. J. Diamond, J. A. Uphoff, D. Boboltz, and B. Dennison</i>	311
WATER MASER MONITORING OF IRAS 16293-2422 <i>A. Wootten</i>	315

12. CIRCUMSTELLAR MASERS (GENERAL)

RECENT STUDIES OF CIRCUMSTELLAR MASERS

P. F. Bowers 321

OBSERVATIONS OF MASER RRLs FROM THE STAR MWC349A

M. A. Gordon 330

THE COLOR MIMICS OF OH/IR STARS

B. M. Lewis 334

THE MASERS OF GY AQL

B. M. Lewis 338

13. CIRCUMSTELLAR OH MASERS

OH/IR STARS AND THE GALACTIC CENTRE DISTANCE

*J. M. Chapman, N. E. B. Killeen, P. te Lintel Hekkert,
J. L. Caswell, and J. Harnett* 345

OH MASER EMISSION FROM F- AND G-TYPE SUPERGIANT STARS

J. M. Chapman, P. te Lintel Hekkert, and N. E. B. Killeen 349

OH MASERS IN THE CIRCUMSTELLAR SHELL OF THE G1a SUPERGIANT AFGL 2343

M. J. Claussen 353

CIRCUMSTELLAR OH MASERS

R. J. Cohen 357

PUMPING OF MAIN LINE MASERS IN TYPE I MIRAS

A. J. Collison and G. E. Nedoluha 361

UNUSUAL OH RADIO EMISSION IN MIRA (α CET)

E. Gérard and G. Bourgois 365

VLBI SPECTRAL LINE POLARIZATION OBSERVATIONS OF THE OH MASERS IN THE SUPERGIANT IRC+10420

A. J. Kemball and P. J. Diamond 369

TO MASE OR NOT TO MASE? POLARIMETRY OF OH/IR STARS

G. F. Lawrence 373

EVIDENCE FOR COMPETITIVE GAIN IN OH TRANSITIONS OBSERVED IN CIRCUMSTELLAR SHELLS <i>B. M. Lewis</i>	376
DISTANCE MEASUREMENTS OF OH-IR SOURCES <i>M. C. Shepherd, M. E. West, R. J. Cohen, and M. J. Gaylard</i>	380
FURTHER EVIDENCE FOR THE PHOTOPRODUCTION MECHANISM OF THE OH MASER FORMATION <i>M. Szymczak</i>	384
MONTE CARLO MODELS OF 1612 MHz OH MASERS IN CIRCUMSTELLAR SHELLS <i>H. J. van Langevelde and Marco Spaans</i>	388
PROPERTIES OF OH/IR STARS IN THE GALACTIC CENTRE <i>A. Winnberg, M. Lindqvist, and H. J. Habing</i>	392
14. CIRCUMSTELLAR WATER MASERS	
THE EXCITATION OF VIBRATIONALLY EXCITED H ₂ O MASERS <i>J. Alcolea and K. M. Menten</i>	399
THE 22 GHz WATER MASER OF RX BOOTIS <i>D. Engels, A. Winnberg, J. Brand, and C. M. Walmsley</i>	403
THE WATER MASER PROPERTIES OF THE ARECIBO SAMPLE OF OH/IR STARS <i>D. Engels and B. M. Lewis</i>	407
THE EVOLUTION OF WATER MASER SPECTRA IN M TYPE STARS <i>H. Takaba, M. Miyoshi, and N. Ukita</i>	411
CIRCUMSTELLAR WATER MASERS <i>J. A. Yates</i>	415
15. CIRCUMSTELLAR SiO MASERS	
RECENT WORK ON SiO MASERS AT THE CENTRO ASTRONÓMICO DE YEBES <i>V. Bujarrabal, J. Alcolea, A. Martínez, A. Barcia, J. D. Gallego, J. Gómez-González, A. del Pino, P. Planesas, R. Bachiller, A. Rodríguez, A. del Romero, M. Tafalla, and P. de Vicente</i>	421

SiO MASERS IN VY CMa: DETECTION OF MASER EMISSION IN THE v=4 STATE <i>J. Cernicharo, V. Bujarrabal, and J. L. Santarén</i>	425
RECENT VLBI OBSERVATIONS OF SiO MASERS <i>F. Colomer</i>	429
86 GHz SURVEY OF IRAS POINT SOURCES: 156 SiO, v=1, J=2→1 MASER SOURCES <i>L. K. Haikala</i>	433
MODELING SiO MASER EMISSION FROM LATE-TYPE STARS <i>P. Lockett and M. Elitzur</i>	437
THE RESULTS OF KNIFE (JAPANESE MM-VLBI) ON SiO MASERS <i>M. Miyoshi and KNIFE team</i>	441
SiO MASER EMISSION AND THE INTRINSIC PROPERTIES OF MIRA VARIABLES <i>N. A. Patel, A. Joseph, R. Ganesan, and C. S. Shukre</i>	445
MOLECULAR CATASTROPHES AND CIRCUMSTELLAR SiO MASERS <i>R. E. Stencel</i>	449
 16. SOLAR SYSTEM MASERS	
NATURAL LASERS AND MASERS IN THE SOLAR SYSTEM <i>M. J. Mumma</i>	455
THE OH RADIO EMISSION OF COMET LEVY 1990 XX <i>E. Gérard, D. Bockelée-Morvan, P. Colom, and J. Crovisier</i>	468
 17. CONCLUDING REMARKS	
ASTROPHYSICAL MASERS FROM A HISTORICAL PERSPECTIVE <i>P. R. Schwartz</i>	475
INDEX OF AUTHORS	478

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