

TABLE OF CONTENTS

	Page
Session 01 : SCATTERING THEORY	1
Monday, July 16th	
Room 1	
15.15 - 16.00	
01.01. WIGNER R-MATRIX APPROACH TO INELASTIC COL- LINEAR COLLISIONS E.J. Heller	3
01.02. A NEW APPROACH TO L^2 EXPANSION SCATTERING CALCULATIONS E.J. Heller and H.A. Yamani	5
01.03. "EQUIVALENT QUADRATURE" EXTRACTION OF SCAT- TERING INFORMATION FROM FREDHOLM DETERMINA- NTS CALCULATED IN AN L^2 -BASIS H.A. Yamani, E.J. Heller, T.N. Rescigno and W.P. Reinhardt	7
01.04. FREDHOLM ELASTIC AND INELASTIC SCATTERING CALCULATIONS USING L^2 -FUNCTIONS WITH COMPLEX COORDINATES T.N. Rescigno and W.P. Reinhardt	9
01.05. BOUNDS ON TRANSITION PROBABILITIES E. Pollak and R.D. Levine	11
01.06. EXPONENTIAL APPROXIMATION FOR REARRANGEMENT COLLISIONS R.D. Levine and E. Pollak	13
Monday, July 16th	
Room 1	
17.00 - 18.00	
01.07. MASS RATIO CORRECTIONS TO ATOM-ATOM SCATTERING M.H. Mittleman and H. Tai	14
01.08. ATTRACTIVE r^{-2} POTENTIAL IN THE AMPLITUDE-PHASE METHOD R.N. Madan	15
01.09. EIKONAL BORN APPROXIMATION WITH ANGLE TRAJEC- TORIES J.C.Y. Chen, T. Ishihara and K.M. Watson	17

	Page
01.10. TRANSLATIONAL FACTOR AND TRAJECTORY EFFECTS IN (p^+ , H) COLLISIONS G. Hatton, T. Ishihara and J.C.Y. Chen	19
01.11. HALF-CLASSICAL CALCULATION OF ROTATIONAL TRANSITIONS J.J. Everdij, J.Th.van Montfort and N.F. Vers- ter	21
01.12. NUMERICAL INTEGRATION OF ONE-DIM WAVE FUNCTION N.F. Verster and J.J. Everdij	23
01.13. CLASSICAL APPROACH TO SEMI-CLASSICAL SCATTE- RING THEORY N.F. Verster	25
 Session 02 : SCATTERING OF HEAVY PARTICLES AND INTERATOMIC POTENTIALS	 27
 Tuesday, July 17th Room 1 11.00 - 12.30	
 02.01. THE DETERMINATION OF $SPIN$ -DEPENDENT INTERATOMIC POTENTIALS FROM EXPERIMENTS USING UN-POLARIZED ATOMIC BEAMS R.A. Giles, J.A. Logan and G. Russell	29
02.02. THE OBSERVATION OF THE RAMSAUER-TOWNSEND-EF- FECT IN H-He ELASTIC SCATTERING R. Gengenbach, J.P. Toennies, W. Welz and G. Wolf	31
02.03. ABSOLUTE SCATTERING CROSS SECTIONS AND INTER- ACTION POTENTIALS FOR Na^+ - Ne AND K^+ - Ar COL- LISIONS V.M. Lavrov, Yu.S. Gordeev and A.B. Izvozhikov	33
02.04. INVESTIGATION OF DIFFERENTIAL SCATTERING OF METASTABLE $He(2^3S)$ ATOMS A.P. Kalinin and V.B. Leonas	34
02.05. FOURIER INVERSION OF TOTAL CROSS SECTION DATA J.H. Henry, I.J. Raju, Y.W. Wong and R.P. Andres	36
02.06. DETERMINATION OF THE He - He REPULSIVE POTEN- TIAL BY INVERSION OF HIGH RESOLUTION TOTAL CROSS SECTION MEASUREMENTS R. Feltgen, K.A. Köhler, H. Pauly, F. Torello and H. Vehmeyer	38

	Page
02.07. A POTENTIAL INVERSION PROCEDURE FOR ORBITING RESONANCES W.C. Stwalley	40
02.08. DESCRIPTION OF H ₂ AND D ₂ SCATTERING OFF OTHER MOLECULES BY CENTRAL FIELD POTENTIAL M.J. Coggiola, R.J. Gordon and A. Kuppermann	42
02.09. AB INITIO POTENTIAL ENERGY SURFACE FOR Li-H ₂ : SURFACE USEFUL FOR VIBRATIONAL-ROTATIONAL EXCI- TATION A.C. Wahl, A. Wagner and A. Karo	44
Thursday, July 19th	
Room 1	
11.00 - 12.30	
02.10. GLORY SCATTERING OF ALKALI ATOMS FROM SMALL MOLECULES N.J. Hermann, E. Hierholzer, R. Maier, J. Mania, Ch. Schlier and A. Schultz	45
02.11. RESULTS FOR THE ANISOTROPIC TOTAL COLLISIONAL CROSS-SECTION OF H ₂ H.C.A.H. Moerkerken and J. Reuss	47
02.12. SCATTERING AND RADIATIVE PROCESSES IN THE LOW LYING STATES OF Ne ₂ AND Ne ₂ ⁺ B.I. Schneider and J.S. Cohen	49
02.13. SCATTERING EXPERIMENTS WITH CROSSED BEAMS OF H ₂ , He AND AMMONIA R.W. Bickes Jr., G. Scoles and K.M. Smith	50
02.14. AVERAGED ADIABATIC POTENTIALS FOR ATOM-DIATOM INELASTIC COLLISIONS AT LOW ENERGIES F.A. Gianturco and U. Lamanna	52
02.15. EMISSION OF RADIATION DURING PROTON-HYDROGEN COLLISIONS J. Brillet and F. Joly	54
02.16. MONTE CARLO SIMULATION OF K + I ₂ COLLISIONS AT SUPERTHERMAL ENERGIES D.R. McDonald, M.A.D. Fluendy and K.P. Lawley	58
02.17. CLASSICAL TRAJECTORY CALCULATIONS OF VIBRATIO- NAL AND ROTATIONAL ENERGY TRANSFER IN EXCITED I ₂ M. Rubinson, B. Garetz and J.I. Steinfeld	58
02.18. NEAR-RESONANT VIBRATION-ROTATION ENERGY TRANS- FER L.L. Poulsen, P.L. Houston and J.I. Steinfeld	61
02.19. MULTIPOLE INTERACTIONS AND MACROSCOPIC DIFFEREN- CES OF ORTHO AND PARA HYDROGEN L. Monchik	63

	Page
Session 03 : SCATTERING OF HEAVY PARTICLES	65
Tuesday, July 17th	
Room 4	
17.00 - 18.40	
03.01. PROTON SCATTERING ON THE EXCITED HELIUM ION Yu.N. Demkov, V.N. Ostrovsky and E.A. Solovyov	67
03.02. EXCITATION PROCESSES IN LOW ENERGY INTERATOMIC COLLISIONS E. Kraulina, M. Armans, M. Jansons, L. Kartasheva, A. Lezdin and S. Liepa	69
03.03. VIBRATIONAL RELAXATION OF N ₂ BY ALKALI ATOMS E.A. Andreev	71
03.04. DIFFERENTIAL ELASTIC SCATTERING MEASUREMENTS OF Xe ⁺ ON Xe P.R. Jones, D.C. Lorents and G.M. Conklin	73
03.05. DIFFERENTIAL SCATTERING OF POTASSIUM BY ATOMIC IODINE K. Kaufmann, J.L. Linsley and J.R. Lawter	75
03.06. DIFFERENTIAL CROSS SECTION OF ARGON IONS BY METHANE T. Arikawa, H. Hirakawa, S. Nishikawa and T. Watanabe	77
03.07. MOMENTUM TRANSFER COLLISIONS FOR IONS IN THE 0.1 - 3 KeV RANGE D.W. Koopman and R.R. Goforth	79
03.08. MOLECULAR CHARGE TRANSFER REACTIONS IN THE THERMAL AND SUPRATHERMAL RANGE N. Kobayashi and Y. Kaneko	81
03.09. SELF BROADENING OF THE PRINCIPAL SERIES OF NEUTRAL SODIUM D.S. Blackwell and G. Peach	83
03.10. ROTATIONAL INELASTICITY IN POLAR DIATOM SCATTERING ; APPLICATION OF THE SEMI- CLASSICAL TIME-DEPENDENT PERTURBATION THEORY TO Ne - CO AND Ne - HCl SYSTEMS S. Saha, E. Guha and A.K. Barua	84

XIII

	Page
Session 04 : HEAVY PARTICLE COLLISIONS INCLUDING REACTIVE SCATTERING	85
Thursday, July 19th	
Room 5	
16.30 - 18.30	
04.01. CLASSICAL MONTE CARLO STUDIES OF ELASTIC AND INELASTIC COLLISION PROCESSES IN THE $\text{Li}^+ - \text{H}_2$ SYSTEM G.D. Barg, G.M. Kendall and J.P. Toennies	87
04.02. COUPLED-CHANNEL INVESTIGATION OF ELASTIC AND INELASTIC COLLISIONS BETWEEN Li^+ AND H_2 P.McGuire and H. Fremerey	89
04.03. CROSS SECTIONS FOR VIBRATIONAL EXCITATION OF H_2 BY Li^+ IMPACT J. Schaefer and W.A. Lester Jr.	91
04.04. COUPLED-CHANNEL CALCULATIONS OF ROTATIONAL EXCITATION OF H_2 BY Li^+ COLLISIONS W.A. Lester Jr., and J. Schaefer	92
04.05. ROTATIONAL EXCITATION IN LOW ENERGY PROTON-MOLECULE COLLISIONS H.Udseth, C.F. Glese and W.R. Gentry	93
04.06. CROSS SECTIONS FOR THE ALKALI ATOM - Br_2 REACTIONS J. Maya and P. Davidovits	95
04.07. ISOTOPE EFFECTS ON THE REACTIVE DIFFERENTIAL CROSS SECTION OF HYDROGEN ATOMS P. Rohwer, J. Grosser and H. Haberland	97
04.08. POLAR DISSOCIATION AND REACTIVE IONIZATION OF THALLIUM HALIDES BY INERT GAS COLLISIONS R.K. Parks, A. Wagner and S. Wexler	99
04.09. DYNAMICS OF COLLISIONAL DISSOCIATION : $\text{CsI} + \text{Xe} \rightarrow \text{Cs}^+ + \text{I}^- + \text{Xe}$ F.P. Tully, H. Haberland and Y.T. Lee	101
04.10. ELECTRONIC STATES OF B^{\pm} PRODUCED BY ELECTRON BOMBARDMENT OF THE BORON TRIHALIDES.: SOME ION-MOLECULE REACTIONS OF B^+ K.C. Lin, R.J. Cotter and W.S. Koski	103
04.11. MEASUREMENT OF THE RATE COEFFICIENTS OF THE REACTION $\text{H}^+ + 2\text{H}_2 \rightarrow \text{H}_3^+ + \text{H}_2$ IN A DRIFT TUBE MASS SPECTROMETER E.W. McDaniel, E. Graham IV, W.C. Keever, I.R. Gatland and D.R. James	104

XIV

	Page
04.12. KINEMATICS OF THE REACTION $H_2^+(He,H)HeH^+$ V. Pacak, K. Birkinshaw and Z. Herman	106
04.13. ENERGETICS OF PROTON TRANSFER IN $H_3^+ - D_2$ COLLISIONS P.B. James, G.R. North, J.J. Leventhal and H.H. Harris	107
 Friday, July 20th	
Room 5	
11.30 - 12.40	
 04.14. THE CHEMICAL DYNAMICS OF DISSOCIATIVE CHARGE TRANSFER : $He^+ + O_2 \rightarrow He + O + O^+$ H. Udseth, C.F. Gleese and W.R. Gentry	109
04.15. ENERGY DEPENDENCE OF THE CROSS SECTION FOR COLLISION-INDUCED DISSOCIATION OF CO^+ NEAR THRESHOLD H. Harris, T.R. Grossheim and J.J. Leventhal	111
04.16. REACTIVE SCATTERING OF ATOMIC OXYGEN P.N. Clough and J. Geddes	113
04.17. Cs + RbCl COLLISIONS : A STATISTICAL AP- PROXIMATION M. Tamir and R.D. Levine	115
04.18. SEMICLASSICAL TREATMENT OF ELECTRONIC TRAN- SITIONS IN $H^+ + D_2 \rightarrow HD^+ + D$ Y.W. Lin, T.F. George and K. Morokuma	117
04.19. PREDICTION OF SPECTATOR STRIPPING DYNAMICS FOR EXCHANGE REACTIONS IN $T + H_2$, $T + D_2$ AND $T + HD$ IN THE 10 eV RANGE P. McGuire and D.A. Micha	119
04.20. CROSS SECTIONS FOR THE ALKALI ATOM- Br_2 REAC- TIONS J. Maya and P. Davidovits	121
 Session 05 : HEAVY PARTICLE COLLISION THEORY	123
 Wednesday, July 18th	
Room 3	
11.30 - 12.20	
 05.01. NEW APPLICATION OF THE MODEL POTENTIAL METHOD TO ATOMIC COLLISIONS C. Bottcher and K. Docken	125

	Page
05.02. MANY-CHANNEL S-MATRIX IN QUASI-CLASSICAL APPROXIMATION G. Dubrovskiy and I. Fischer-Hjalmars	126
05.03. EIKONAL APPROXIMATION IN THE THEORY OF ATOM-MOLECULE REACTIONS G. Dubrovskiy, A. Bogdanov and I. Fischer-Hjalmars	127
05.04. AB INITIO CALCULATIONS OF POTENTIAL ENERGY CURVE OF HeH^{++} IN THE COMPLEX PLANE K. Morokuma and T.F. George	129
05.05. INVERSE POWER LAW MODELS FOR NON-ADIABATIC TRANSITIONS N. Gajić and R.K. Janev	131
Thursday, July 19th Room 3 17.00 - 18.00	
05.06. CROSSING OF TWO SYSTEMS OF POTENTIAL CURVES V.N. Ostrovsky	133
05.07. NON-ADIABATIC TRANSITIONS IN TRIATOMIC SYSTEMS V.I. Osherov and A.I. Voronin	135
05.08. EXCHANGE INTERACTION BETWEEN TWO DIFFERENT ATOMS AT INTERMEDIATE DISTANCES E.A. Andreev	137
05.09. TWO-STATE SCATTERING MATRIX FOR THE EXPONENTIAL MODEL OF NO-ADIABATIC COUPLING J.E. Bayfield, E.E. Nikitin, and A.I. Reznikov	139
05.10. THE "ELASTIC" SCATTERING OF DEGENERATE ATOMS F.H. Mies	141
05.11. BEHAVIOUR OF COLLISIONAL RELAXATION RATES UNDER THE INFLUENCE OF AN ENERGY DEFECT IN NEARLY RESONANT COLLISIONS J.C. Gay	142
05.12. TIME DELAYS, PHASE BEHAVIOUR AND RESONANCES IN THE COLLINEAR $\text{H} + \text{H}_2$ EXCHANGE REACTION G.C. Schatz and A. Kupffermann	145
05.13. QUANTUM, QUASI-CLASSICAL AND SEMI-CLASSICAL REACTION PROBABILITIES FOR THE COLLINEAR $\text{F} + \text{H}_2 \rightarrow \text{FH} + \text{H}$ REACTION G.C. Schatz, J.M. Bowman and A. Kupffermann	147

	Page
05.14. STREAMLINES OF PROBABILITY CURRENT DENSITY AND TUNNELING FRACTIONS FOR THE COLLINEAR H + H ₂ → H ₂ + H REACTION A. Kuppermann, J.T. Adams and D.G. Truhlar	149
Session 06 : COMPUTER PROGRAMS IN HEAVY PARTICLE COLLISIONS	151
Tuesday, July 17th	
Room 3	
15.30 - 16.00	
06.01. COMPUTER-AIDED SOLUTIONS TO A CLASS OF ATOMIC AND MOLECULAR COLLISIONS INVOLVING ELECTRON CAPTURE J. van den Bos	153
06.02. COMPUTER ANIMATED FILMS ON ION-MOLECULE CHARGE TRANSFER TRAJECTORIES F.A. Wolf and K. Birkinshaw	154
Session 07 : INELASTIC SCATTERING OF HEAVY PARTICLES	157
Friday, July 20th	
Room 1	
16.30 - 18.00	
07.01. STRONG COUPLING SEMICLASSICAL METHODS. THE PHASE CORRECTED AVERAGE APPROXIMATION T.A. Green and M.E. Riley	159
07.02. ELECTRON KINEMATICS FACTORS IN SLOW ATOMIC COLLISIONS V. Sethuraman and W.R. Thorson	161
07.03. THE AVERAGE APPROXIMATION IN SEMICLASSICAL CLOSE-COUPLING METHODS M.E. Riley	163
07.04. DIFFERENTIAL CROSS SECTIONS FOR ELASTIC SCAT- TERING AND THE 2s AND 2p COLLISIONAL EXCITA- TION OF H(1s) BY HYDROGEN AND HELIUM M.R. Flannery and K.J. McCann	164
07.05. EXCITATION AND ANGULAR SCATTERING OF FAST H BY IMPACT ON A TARGET OF He E.W. Thomas and I. Sauers	166
07.06. DIFFERENTIAL INELASTIC SCATTERING IN Ar ⁺ +N ₂ COLLISIONS S.M. Fernandez, F.J. Eriksen, A.V. Bray and E. Pollak	168

XVII

	Page
07.07. A NEW SYSTEM OF OSCILLATIONS IN THE POTASSIUM-RARE GAS SCATTERING V. Kempster, B. Kübler and W. Mechlenbrauck	170
07.08. ANGULAR DISTRIBUTION OF Li^+ FROM COLLISIONS OF LITHIUM ATOMS WITH MOLECULES IN THE 10 eV REGION C.E. Young and S. Wexler	171
Session 08 : QUASI-MOLECULAR ASPECTS OF HEAVY PARTICLE COLLISIONS	173
Tuesday, July 17th	
Room 5	
16.30 - 18.30	
08.01. INTERACTION BETWEEN He^{+2} IONS AND He, Xe ATOMS V.V. Afrosimov, G.A. Lieko, Yu.A. Mamaev and M.N. Panov	175
08.02. ANGULAR SCATTERING OF 20 - 140 KeV He^+ IN THE EXCITATION OF He ATOMS TO THE $n=2$ STATES J.T. Park and V. Pol	177
08.03. ION-ELECTRON COINCIDENCE MEASUREMENTS IN SLOW HEAVY PARTICLE COLLISIONS G. Gerber and A. Niehaus	179
08.04. IONIZATION MECHANISMS IN SLOW HEAVY PARTICLE COLLISIONS INVESTIGATED BY ELECTRON SPECTROSCOPY G. Gerber, G. Lantschner, R. Morgenstern and A. Niehaus	181
08.05. INELASTIC DIFFERENTIAL SCATTERING OF $\text{He}(1^1\text{S})$ BY $\text{He}(1^1\text{S})$ R. Morgenstern, M. Barat and D.C. Lorents	183
08.06. ELECTRONIC EIGENFUNCTIONS AND SCATTERING THEORY MATRIX ELEMENTS FOR HeH^+ H.H. Michels, J.C. Browne, T.A. Green and M.M. Madsen	185
08.07. OPTICAL RADIATION FROM THE Li^+ - He COLLISIONS N. Andersen, O. Nielsen and E. Veje	186
08.08. EXCITATION OF HELIUM BY LITHIUM IONS A.J. Cole and R.P. Lowe	188
08.09. DIFFERENTIAL CROSS SECTION OF ELECTRON TRANSITIONS IN Na - Ne^+ COLLISIONS V.V. Afrosimov, Yu.S. Gordeev and V.M. Lavrov	190

	Page
08.10. MECHANISMS OF INELASTIC ION-ATOM COLLISIONS Z.Z. Latypov and A.A. Shaporenko	192
08.11. DIFFERENTIAL MEASUREMENTS FOR ELECTRON CAPTURE PROCESSES IN He^+ - Ne COLLISIONS (0.3 - 3 KeV) M. Barat, J.C. Brenot and J. Pommier	194
08.12. APPLICATION OF UNIFORM WKB THEORY TO He^+ - Ar CHARGE EXCHANGE H.G. Guerin and B.C. Eu	196
 Thursday, July 19th Room 5 11.00 - 12.40	
08.13. CALCULATION OF QUASIMOLECULAR TERMS AT SMALL DISTANCES USING VIRIAL THEOREM V.V. Afrosimov, Yu.S. Gordeev and A.M. Pólyansky	198
08.14. DIABATIC STATES IN Ar^+ - Ar COLLISIONS V. Sidis and M. Barat	200
08.15. MOLECULAR ORBITAL CALCULATIONS FOR CLOSE ATOMIC COLLISIONS J.S. Briggs and M.R. Hayns	202
08.16. A SCALING LAW FOR K-SHELL EXCITATION IN ION-ATOM COLLISIONS J.S. Briggs and J.H. Macek	203
08.17. VACENCY OCCUPATION PROBABILITIES IN ION-ATOM COLLISIONS J. Macek and J.S. Briggs	205
08.18. TUNNELING REMNANTS OF THE STUECKELBERG OSCILLATIONS E.E. Nikitin, M.Ya. Ovchinnikova and A.I. Shushin	207
08.19. OSCILLATORY STRUCTURE IN INELASTIC SCATTERING PROCESSES A. Dalgarno	209
08.20. MODEL OF CROSSING ENERGY BANDS FOR CLOSE ATOMIC COLLISIONS V.V. Afrosimov, Yu.S. Gordeev and A.N. Zinoviev	210
08.21. DIFFERENTIAL SCATTERING OF METASTABLE $\text{He}(2^3\text{S})$ ON $\text{He}(1^1\text{S})$ AT ENERGIES BETWEEN 5 AND 10 eV R. Morgenstern, D.C. Lorents, J.R. Peterson and R.E. Olson	212
08.22. LOW ENERGY INELASTIC SCATTERING CROSS SECTIONS FOR $\text{He}(2^3\text{S}) + \text{He}(1^1\text{S}) \rightarrow \text{He}(2^3\text{P}_1) + \text{He}(1^1\text{S})$ R.E. Olson, J.C. Brown and L. Lenaman	214

Session 09 : LONG RANGE CROSSING EFFECTS IN HEAVY
PARTICLE COLLISIONS 217

Tuesday, July 17th

Room 5

11.00 - 12.00

- 09.01. PHASE-INTERFERENCE EFFECTS IN LOW-ENERGY COLLISIONS BETWEEN O^+ IONS AND Ne ATOMS
T. Andersen, A.K. Nielsen and K.J. Olsen 219
- 09.02. THRESHOLD BEHAVIOUR OF RESONANCE LINES EXCITED IN SLOW COLLISIONS OF Cs^+ WITH He AND Ne
S. Bobashev and L. Shmaenok 221
- 09.03. VACUUM ULTRAVIOLET EMISSIONS FROM He^+ /RARE GAS COLLISIONS
B.M.Hughes, E.G. Jones and T.O. Tiernan 223
- 09.04. INTERFERENCE EFFECTS IN 4^3S AND 4^1S EXCITATION DIFFERENTIAL CROSS SECTIONS IN $He^+ - He$ COLLISIONS
G. Rahmat, G. Vassilev and J. Baudon 226
- 09.05. MERGING BEAMS STUDY OF COLLISIONS BETWEEN He^+ and He^* (METASTABLE 2^1S-2^3S)
J.P. Grouard, J. Hirszowski, P. Lefebure, E. Mercier, J.L. Montmagnon, H. de Palmas and A. Sinturel 228

Session 10 : SCATTERING THEORY AND CORRELATION EFFECTS 231

Tuesday, July 17th

Room 1

16.30 - 18.00

- 10.01. SCATTERING OF A PARTICLE BY A HARMONIC OSCILLATOR
G. Drukarev 233
- 10.02. ANOMALOUS POLE SINGULARITIES IN ATOMIC PROCESSES
V.G. Gorshkov, A.I. Michailov and S.G. Sherman 235
- 10.03. THE TIME INDEPENDENT SCATTERING THEORY WITH A COULOMB POTENTIAL
R. Gayet 237

	Page
10.04. THE INTEGRAL EQUATIONS FOR THREE CHARGED PARTICLES SYSTEM BELOW THE IONIZATION THRESHOLD A.M. Veselova	239
10.05. VARIATIONAL PRINCIPLES FOR THREE PARTICLE SCATTERING AMPLITUDES S.P. Merkuriev	240
10.06. ON THE PROBLEM OF EXISTENCE OF COLLECTIVE OSCILLATIONS IN ATOMS M.Ya. Amusia, N.A. Cherepkov, R.K. Janev, and Dj. Živanović	242
10.07. LSZ REDUCTION FORMALISM AND GENERALIZED GREEN FUNCTIONS Dj. Živanović and R.K. Janev	244
10.08. A NEW MANY BODY THEORY OF INELASTIC ELECTRON-ATOM (MOLECULE) SCATTERING H. Taylor, G. Csanak, L. Thomas and S. Yarlagadda	246
10.09. CORRELATION EFFECTS IN ELASTIC ELECTRON-HELIUM SCATTERING L. Hambro and K. Aashamar	247
Session 11 : ELASTIC SCATTERING OF ELECTRONS	249
Tuesday, July 17th	
Room 2	
14.30 - 16.00	
11.01. THE EFFECT OF THE SPIN-ORBIT INTERACTION OF THE ELASTIC SCATTERING OF ELECTRONS BY ONE-ELECTRON ATOMS P.G. Burke and J.F.B. Mitchell	251
11.02. SPIN-POLARIZATION IN ELECTRON-HELIUM SCATTERING K. Blum and H. Kleinpoppen	253
11.03. DIFFERENTIAL MEASUREMENTS OF SPIN-EXCHANGE CROSS SECTIONS FOR ELASTIC ELECTRON-SODIUM SCATTERING A. Kasdan, T.M. Miller and B. Bederson	255
11.04. POLARISED ELECTRONS PRODUCED THROUGH e-H SPIN-EXCHANGE COLLISIONS USING A LONGITUDINAL TRAP WITH TEFLON COATINGS R. Krisciokaitis and W.K. Peterson	257
11.05. DIFFERENTIAL CROSS SECTION FOR ELASTIC SCATTERING OF ELECTRONS FROM ATOMIC HYDROGEN P.J.O. Teubner, C.R. Lloyd, E. Weigold and B.R. Lewis	259

	Page
11.06. THE OPTICAL MODEL FOR ELASTIC ELECTRON SCATTERING ON ARGON J.B. Furness, I.E. McCarthy and P.J.P. Teubner	261
11.07. A NEW APPROACH TO ELASTIC ELECTRON-ATOM SCATTERING AT INTERMEDIATE ENERGIES F.W. Byron Jr. and C.J. Joachain	263
11.08. ELASTIC SCATTERING OF ELECTRONS BY NEON AND ARGON IN PLANE WAVE APPROXIMATION S.P. Khare and P. Shobha	265
11.09. ELASTIC SCATTERING OF 100, 150 AND 200 eV ELECTRONS ON NEON ATOM M.V. Kurepa, L.Dj. Vušković and S.D. Kalezić	267
11.10. ELASTIC SCATTERING OF 100 - 500 eV ELECTRONS BY HELIUM R.H.J. Jansen and F.J. de Heer	269

Tuesday, July 17th

Room 2

16.30 - 17.00

11.11. ANGULAR DIFFERENTIAL CROSS SECTIONS FOR ELASTICALLY SCATTERED ELECTRONS IN NITROGEN R.D.DuBois and M.E. Rudd	271
11.12. ELASTIC SCATTERING OF ELECTRONS BY THE RARE GASES J.W.McConkey and J.A. Preston	273
11.13. THE DETERMINATION OF THE ELECTRON COLLISION CROSS SECTIONS FOR MOMENTUM TRANSFER OF ALKALI METALS A.M. Devyatov, L.M. Volkova and T.N. Solov'ev	275
11.14. ELASTIC SMALL ANGLE ELECTRON SCATTERING FROM RARE GASES K. Jost, M. Fink and P. Herrmann	277

	Page
Session 12 : INELASTIC SCATTERING OF ELECTRONS ON ATOMS AND IONS	279
Tuesday, July 17th	
Room 2	
17.30 - 18.00	
12.01. MEASUREMENTS OF THE FUNCTIONS FOR EXCITATION OF $\text{He}^+(1S)$ TO $\text{He}^+(2S)$ BY ELECTRON IMPACT K.T. Dolder and B. Peart	281
12.02. EXCHANGE EXCITATION IN HELIUM A.F.J. van Raan and J. van Eck	282
12.03. ANGULAR DISTRIBUTION AND POLARIZATION FRACTIONS OF HELIUM RESONANCE RADIATION ($n^1P - 1^1S$) M.J. Mumma, M. Misakian, W.M. Jackson and J.L. Faris	284
12.04. MEASUREMENT OF DIFFERENTIAL CROSS SECTIONS FOR EXCITATION OF THE $n=2$ STATES IN He BY ELECTRON COLLISIONS IN THE ENERGY REGION FROM 50 TO 500 eV H. Suzuki and T. Takayanagi	286
Thursday, July 19th	
Room 2	
16.30 - 18.50	
12.05. VARIATIONAL PRINCIPLES FOR INTEGRO-DIFFERENTIAL EQUATION S.R. Singh, J.W. Darewich and A.D. Stauffer	288
12.06. VARIATIONAL CALCULATIONS OF MULTICHANNEL ELECTRON-ATOM SCATTERING R.K. Nesbet and R.S. Oberoi	289
12.07. APPLICATION OF A VARIATIONAL METHOD TO INELASTIC ELECTRON-HYDROGEN SCATTERING J. Callaway and J.W. Wooten	291
12.08. THE MINIMUM VARIANCE METHOD APPLIED TO $e - H$ SCATTERING F.H. Read and J.R. Soto-Montiel	292
12.09. DISTORTED WAVE POLARIZED ORBITAL CALCULATIONS OF EXCITATION OF ONE ELECTRON SYSTEM BY ELECTRON IMPACT M.R.C. McDowell, L.A. Morgan and V.P. Myerscough	294
12.10. ELECTRON-IMPACT EXCITATION OF THE $2^1S, 2^3S$ AND 2^3P STATES OF HELIUM IN THE DISTORTED-WAVE APPROXIMATION W.N. Shelton, K.L. Baluja and D.H. Madison	296

	Page
12.11. ELECTRON IMPACT EXCITATION OF O^{2+} AND OTHER IONS W. Eissner and M.J. Seaton	298
12.12. APPLICATION OF GLAUBER THEORY TO CALCULATE THE POLARIZATION OF THE RESONANCE LINES OF Li AND Na BY ELECTRON IMPACT A.N. Tripathi, K.C. Mathur and S.K. Joshi	299
12.13. SYSTEMATICS OF THE TOTAL CROSS SECTIONS FOR INELASTIC SCATTERING OF FAST CHARGED PAR- TICLES BY ATOMS OF THE FIRST AND SECOND ROW R.P. Saxon, M. Inokuti and J.L. Dehmer	302
12.14. COMPARATIVE STUDY OF MULTICONFIGURATION AND POLARIZED ORBITAL CLOSE COUPLING CALCULATIONS M. Le Dourneuf, H. van Regemorter and Vo Ky Lan	304
12.15. COMBINED CLASSICAL THEORY OF EXCITATION OF HYDROGEN ATOMS BY ELECTRONS D. Banks and I.C. Percival	306
12.16. SPIN-FORBIDDEN TRANSITIONS BY HIGH ENERGY ELECTRON IMPACT W.M. Huo, K.N. Klump and E.N. Lassetre	308
12.17. MOMENTUM TRANSFER CROSS-SECTION OF CAESIUM FOR ELECTRONS M. Gryzinski, A. Kiraga and Z. Klos	310
12.18. EXCITATION OF HYDROGEN ATOMS BY ELECTRON IM- PACT. THREE BODY NUMERICAL CALCULATIONS FOR THE "FREE-FALL" ATOMIC MODEL M. Gryzinski, J. Bzowski, J. Kunc and M. Zgorzelski	312
12.19. 1-DEPENDENT EXCITATION IN BINARY ENCOUNTER APPROXIMATION M. Gryzinski	314

Friday, July 20th

Room 2

11.00 - 12.45

12.20. DIFFERENTIAL SCATTERING OF ELECTRONS BY HELIUM S.K. Sethuraman, J.A. Rees and J.R. Gibson	316
12.21. MEASUREMENTS OF COMPLEX EXCITATION AMPLITUDES IN ELECTRON-HELIUM COLLISIONS BY ANGULAR CORRE- LATIONS USING A COINCIDENT METHOD M. Eminyany, K. MacAdam, J. Slevin and H. Kleinpoppen	318
12.22. ELECTRON ATOMIC OXYGEN SCATTERING S.P. Rountree, Ed.R. Smith and R.J.W. Henry	319

	Page
12.23. ELECTRON SCATTERING BY LASE EXCITED SODIUM ATOMS I.V. Hertel and W. Stoll	321
12.24. ELECTRON IMPACT EXCITATION OF THE OPTICALLY FORBIDDEN STATES OF He AT INTERMEDIATE ENERGIES S. Trajmar	324
12.25. SIMULTANEOUS EXCITATION AND IONIZATION OF ARGON BY ELECTRON IMPACT J.W. McConkey and F.G. Donaldson	326
12.26. ELECTRON IMPACT EXCITATION OF Xe W. Williams, S. Trajmar and A. Kuppermann	328
12.27. EXCITATION OF THE $6^2P_{3/2}$ LEVEL OF BaII BY ELECTRON IMPACT AND POLARIZATION OF THE EMITTED RADIATIONS D.H. Crandall, P.O. Taylor and G.H. Dunn	330
12.28. BEAM-BEAM SCATTERING OF KeV ELECTRONS FROM ATOMIC AND MOLECULAR TARGETS: ANGULAR AND ENERGY LOSS DEPENDENCE OF THE SCATTERED ELECTRON INTENSITY H.F. Wellenstein and R.A. Bonham	332
12.29. EFFECTIVE CROSS SECTIONS FOR COLLISIONS BETWEEN THE ZINK, CADMIUM AND MERCURY ATOMS WITH ELECTRONS AND ATOMS N.P. Penkin and T.P. Redko	333
12.30. NORMALIZATION OF INELASTIC SCATTERING AMPLITUDE IN MOMENTUM REPRESENTATION I.L. Beigman	336
Session 13 : ELECTRON EXCITATION OF MOLECULES	339
Thursday, July 19th	
Room 2	
11.30 - 12.40	
13.01. DISSOCIATION OF $(\text{HeH})^+$ MOLECULAR ION USING ELLIPTIC-TYPE ORBITALS K. Mullick, T.K.R. Dastigar and A.K. Barua	341
13.02. SCATTERING OF ELECTRONS BY ALKALI HALIDES R.C. Slater, M.G. Fickes, W. Becker and R.C. Stern	342
13.03. EFFECTIVE CROSS SECTIONS OF SOME INELASTIC COLLISIONS OF ELECTRONS WITH THE ATOMS AND MOLECULES OF OXYGEN N.P. Penkin and O.D. Tsygir	344

	Page
13.04. K-SHELL ENERGY LOSS SPECTRA OF 2.5 KeV ELECTRONS IN POLYATOMIC MOLECULES G.R. Wight and C.E. Brion	347
13.05. THE EXCITATION OF ELECTRONIC STATES OF CO BY ELECTRON IMPACT S. Trajmar, W. Williams and D.C. Cartwright	349
13.06. DIFFERENTIAL CROSS SECTIONS FOR THE EXCITATION OF N ₂ BY 10 TO 50 eV ELECTRONS D.C. Cartwright, S. Trajmar, W. Williams and A. Chutjian	351
13.07. ELECTRON IMPACT EXCITATION AND ASSIGNMENT OF THE LOW-LYING ELECTRONIC STATES OF CO ₂ R.I. Hall, A. Chutjian and S. Trajmar	353
13.08. LIFETIME AND EXCITATION FUNCTION OF THE D ³ Σ ⁺ STATE OF N ₂ D.J. Burns, L. Kurzweg and G.T. Egbert	355
Friday, July 20th	
Room 2	
14.30 - 16.00	
13.09. DISSOCIATIVE EXCITATION PROCESSES IN H ₂ O AND NO N. Böse, H. Hertz, H. Lutz and W. Sroka	357
13.10. EXCITATION OF THE N ₂ ⁺ C STATE BY ELECTRONS INCI- DENT ON N ₂ ISOTOPES V.A. van de Runstraat, F.J. de Heer and T.R. Govers	359
13.11. EXCITATION OF METASTABLE N ₂ (A ³ Σ ⁺ _u) VIBRATI- ONAL LEVELS BY ELECTRON IMPACT W.L. Borst and S.L. Chang	361
13.12. DISSOCIATIVE EXCITATION OF O ₂ AND N ₂ BY ELECTRON IMPACT IN THE EXTREME VACUUM ULTRAVIOLET J.E. Mentall and H.D. Morgan	363
13.13. ELECTRON IMPACT EXCITATION OF METASTABLE STATES IN CARBON MONOXIDE W.C. Wells, W.L. Borst and E.C. Zipf	365
13.14. ELECTRON IMPACT DISSOCIATIVE EXCITATION OF H ₂ O, CH ₄ AND NH ₃ H.D. Morgan and J.E. Mentall	367
13.15. ABSOLUTE MEASUREMENTS OF EMISSION CROSS- SECTIONS FOR DISSOCIATIVE EXCITATION OF H ₂ O BY ELECTRON IMPACT S. Tsurubuchi, T. Iwai and T. Horie	368

- 13.16. ANGULAR DISTRIBUTION OF METASTABLE DISSOCIATION FRAGMENTS PRODUCED BY ELECTRONS
M.J. Mumma, M. Misakian, W.M. Jackson and J.L. Paris 370
- 13.17. THE STUDY OF SOME SIMPLE HYDROCARBON MOLECULES EXCITED BY ELECTRON IMPACT
V.T. Koppe, A.G. Koval', N.P. Danilevskii and D.V. Pilipenko 372
- 13.18. ELECTRON-IMPACT CROSS-SECTION MEASUREMENTS FOR BALMER β RADIATION IN SOME HYDROCARBONS
J.M. Kurepa, M.D. Tasić and V.V. Urošević 373

Friday, July 20th

Room 2

16.30 - 17.20

- 13.19. DISSOCIATION OF MOLECULES AND MOLECULAR IONS BY ENERGY TRANSFER TO THE NUCLEI
V.D. Ob'edkov and M.A. Burnashev 375
- 13.20. THE PECULIARITIES IN THE SCATTERING OF A CHARGED PARTICLE BY THE FIELD OF A FINITE DIPOLE
D.I. Abramov and I.V. Komarov 376
- 13.21. GENERALIZED OSCILLATOR STRENGTHS OF NITROGEN
K.J. Miller and M. Krauss 378
- 13.22. DEPENDENCE OF LONG RANGE POTENTIALS OF THE H₂ MOLECULE ON INTERNUCLEAR DISTANCE
S. Hara, J.W. Darewych and P. Baille 379
- 13.23. ROTATIONAL AND VIBRATIONAL ENERGY LEVEL DISTRIBUTION OF C₂ (A³ Π_g) MOLECULES PRODUCED IN COLLISIONS OF ELECTRONS WITH C₂H₂ AND C₂H₄ MOLECULES
G.N. Polyakova and B.M. Fizgeer 381
- 13.24. INVESTIGATION OF ELECTRON IMPACT EXCITATION PROCESSES OF NITRIC OXYDE
M.M. Povch and V.V. Skubenich 383
- Session 14 : IONIZATION BY ELECTRONS 385

Monday, July 16th

Room 2

16.30 - 18.00

- 14.01. IONIZATION IN THE COULOMB-PROJECTED BORN APPROXIMATION
S. Geltman and M.B. Hidalgo 387
- 14.02. EVIDENCE OF ELECTRONIC STRUCTURE OF ATOMS AND MOLECULES IN QUASIELASTIC ELECTRON KNOCK-OUT (e,2e)
V.G. Levin, V.G. Neudatchin and Yu.F. Smirnov 388

XXVII

	Page
14.03. (e,2e) ANGULAR AND ENERGY CORRELATIONS FOR HELIUM, ARGON AND KRYPTON S.T. Hood, E. Weigold and P.J.O. Teubner	390
14.04. ATOMIC WAVE FUNCTIONS FROM THE (e,2e) REACTION J.B. Furness, I.E. McCarthy, P.J.O. Teubner and E. Weigold	391
14.05. ELECTRON-ATOM BORN IONIZATION G. Doolen and D. Robb	392
14.06. ABOUT CLASSICAL CALCULATIONS OF ELECTRON- ATOM IONIZATION FOR ATOMS WITH d-ELECTRONS V.I. Ochkur	393
14.07. NUMERICAL AND ANALYTICAL HARTREE-FOCK ORBI- TALS OF IONS OF THE ISOELECTRONIC SERIES OF HELIUM P.U. Arifov, V.M. Malyan and G.S. Pochivalov	394
14.08. CLASSICAL BINARY ENCOUNTER ELECTRON IMPACT IONIZATION FORMULAS CORRECTED FOR THE NUC- LEUS FIELD AND THE ATOMIC MODEL M. Gryzinski and M. Zgorzelski	396
14.09. CRITICAL REMARKS ON IONIZATION CROSS SECTION MEASUREMENTS M. Gryzinski	398
14.10. NOBLE GASES AND ALKALI METALS ELECTRON IMPACT IONIZATION CROSS SECTIONS CALCULATED FROM THE ATOMIC FIELD AND ATOMIC MODEL CORRECTED BINARY ENCOUNTER FORMULAS M. Zgorzelski	400
14.11. THE PROBABILITY OF MULTIPLE-CHARGED ION FOR- MATION VIA AUGER TRANSITIONS AND STEP-BY-STEP IONIZATION T.Z. Kalanov and E.S. Parilis	402
Tuesday, July 17th	
Room 2	
11.00 - 11.30	
14.12. BETHE-BORN THEORY FOR IONIZATION IN ELECTRON- HYDROGEN MOLECULE ION COLLISIONS J.M. Peek	403
14.13. IONIZATION OF METASTABLE RARE GAS ATOMS BY ELECTRON IMPACT A.J. Dixon, M.F.A. Harrison and A.C.H. Smith	405
14.14. AUTOIONIZATION IN HEAVY ALKALI ELEMENTS K.J. Nygaard	407

XXVIII

Page

Tuesday, July 17th
 Room 2
 12.00 - 12.50

- 14.15. SIMULTANEOUS EXCITATION AND IONIZATION OF 5p
 ELECTRONS IN CESIUM
 Y.B. Hahn and K.J. Nygaard 409
- 14.16. DOUBLE DIFFERENTIAL CROSS SECTIONS FOR IONI-
 ZATION OF HELIUM BY ELECTRON IMPACT (THEORY)
 S. Tahira and N. Oda 411
- 14.17. GENERALIZED OSCILLATOR STRENGTH FOR IONIZATION
 OF HELIUM BY ELECTRON IMPACT
 N. Oda and F. Nishimura 413
- 14.18. MULTIPLY CHARGED ION PRODUCTION BY KeV ELEC-
 TRON IMPACT
 V.V. Afrosimov, M.Ya. Amusia, Yu.S. Gordeev,
 M.P. Kazachkov and S.G. Shchemelini 415

Wednesday, July 18th
 Room 2
 11.00 - 12.30

- 14.19. IONIZATION OF POSITIVE IONS BY ELECTRONS IN
 THE HOLLOW BEAM TRAP
 J.B. Hasted, M. Hamdun and G.L. Awad 417
- 14.20. THE DISSOCIATIVE IONIZATION AND RECOMBINATION
 OF H_2^+ IONS
 B. Peart and K.T. Dolder 419
- 14.21. DIRECT AND DISSOCIATIVE IONIZATION OF H_2 VIA
 THE $2\Sigma_g^+$ STATE
 J.W. McConkey and A. Crowe 420
- 14.22. DISSOCIATIVE IONIZATION OF SOME SIMPLE MOLE-
 CULES BY ELECTRON IMPACT
 J.W. McConkey and A. Crowe 422
- 14.23. DISSOCIATIVE IONIZATION OF O_2 BY ELECTRON
 IMPACT
 J. Schopman and R. Lochter 424
- 14.24. DISSOCIATIVE IONIZATION OF N_2 BY ELECTRON
 IMPACT
 R. Lochter and J. Schopman 426
- 14.25. DISSOCIATIVE IONIZATION BY ELECTRON IMPACT.
 MEASUREMENT OF ANGULAR AND KINETIC ENERGY
 DISTRIBUTIONS
 K. Köllmann 428

	Page
14.26. IONIZATION OF H ₂ O BY ELECTRON IMPACT AT LOW ENERGIES T.D. Märk, F. Egger. H. Störi and M. Pahl	429
14.27. ENERGY DISTRIBUTIONS OF SECONDARY ELECTRONS RELEASED FROM WATER VAPOR BY FAST ELECTRONS D.A. Vroom and R.L. Palmer	431
14.28. STRUCTURES IN THE APPEARANCE EFFICIENCY CURVE OF N ⁺ IONS PRODUCED BY ELECTRON IMPACT ON N ₂ H. Wankenne, E. Bolduc and P. Marmet	433
14.29. OSCILLATOR STRENGTH VALUES DERIVED FROM ELEC- TRON ENERGY LOSS SPECTRA OF MOLECULES R.H. Huebner, R.J. Celotta, S.R. Mielcharek and C.E. Kuyatt	435
14.30. EXPERIMENTS ON STEPWISE IONIZATION OF ALKALI- EARTH ELEMENTS BY INTERSECTION OF ELECTRON AND ATOM BEAMS I.S. Aleksakhin, I.P. Zapesochny and I.I. Shafranyosh	437
 Session 15 : THRESHOLD BEHAVIOUR OF ELECTRON-ATOM CROSS SECTIONS	 439
 Monday, July 16th Room 2 15.45 - 16.00	
15.01. INELASTIC THRESHOLDS AND ASSOCIATED CUSPS S. Cvejanović, J. Comer and F.H. Read	441
15.02. THRESHOLD IONIZATION OF HELIUM BY ELECTRON IMPACT S. Cvejanović and F.H. Read	442
15.03. STRUCTURES IN THE ELECTRON IMPACT IONIZATION OF H ₂ NEAR THRESHOLD L.G.J. Boesten and H.G.M. Heideman	443

	Page
Session 16 : RESONANT SCATTERING OF ELECTRONS BY MOLECULES	445
Thursday, July 19th	
Room 2	
14.30 - 15.30	
16.0	
16.01. ANGULAR DISTRIBUTIONS IN RESONANCE SCATTERING OF ELECTRONS BY MOLECULES C. Bottcher and F.H. Read	447
16.02. RESONANT ROTATIONAL EXCITATION OF H ₂ BY ELEC- TRON IMPACT G. Joyez, J. Comer and F.H. Read	449
16.03. CROSS SECTION OF TRANSITIONS BETWEEN THE VIB- RATIONAL STATES IN THE RESONANT SCATTERING OF ELECTRONS BY H ₂ V.V. Kuchinsky	451
16.04. ROLE OF NEGATIVE IONIC STATES IN LOW ENERGY ELECTRON SCATTERING BY O ₂ AND NO F. Koike and T. Watanabe	452
16.05. THE CALCULATION OF CROSS SECTION FOR SOME RE- SONANT EXCITATIONS OF N ₂ I. Čadež and F.F. Fayard	454
16.06. COMPARISON OF THEORY AND EXPERIMENT FOR ALL THE PROCESSES INVOLVING THE $2\Sigma_u^+$ RESONANT STATE OF H ₂ ⁻ F.F. Fayard and H. Abgrall	456
16.07. SHAPE RESONANCES IN THE A AND B STATES OF N ₂ ⁻ J. Mazeau, F. Greteau, R.I. Hall, G. Joyez and J. Reinhardt	458
Session 17 : RESONANT SCATTERING OF ELECTRONS. ASSOCIATIVE ATTACHMENT	461
Thursday, July 19th	
Room 2	
15.30 - 16.00	
17.01. METASTABLE TRANSITIONS IN NEGATIVE ION SPECTRA OF SO ₂ R. Maksić, M. Miletić, S. Stamatović and K. Zmbov	463
17.02. DECONVOLUTION OF VIBRATIONAL EXCITATION STRUCTURE IN DISSOCIATIVE ATTACHMENT IN CO ₂ I. Mendaš and A. Stamatović	465

	Page
17.03. CROSS SECTIONS FOR PRODUCTION OF O_2^- AND C^- BY DISSOCIATIVE ELECTRON ATTACHMENT IN CARBON DIOXYDE D. Spence and G.J. Schulz	467
Session 18 : RESONANT SCATTERING OF ELECTRONS BY ATOMS	469
Friday, July 20th	
Room 2	
9.00 - 10.20	
18.01. LOW ENERGY RESONANCE SCATTERING OF ELECTRONS ON THOMAS-FERMY ATOMS Yu.N. Demkov and N.B. Berezina	471
18.02. ON THE BROAD RESONANCE NEAR 50 eV IN THE EXCITATION OF He BY ELECTRON IMPACT H.G.M. Heideman, T. van Ittersum and J.A. Engelen	473
18.03. WAVE-FUNCTION DEPENDENCE OF 60 eV RESONANCES IN e-He SCATTERING S. Ormonde, F.B. Kets, K. Smith and B.W. Torres	475
18.04. RESONANCES IN THE n=3 STATES OF HELIUM D.W.O. Heddle, R.G.W. Keesing and A. Parkin	476
18.05. RESONANT STRUCTURE IN ELECTRON IMPACT EXCITATION OF XENON N. Swanson, R.J. Celotta and C.E. Kuyatt	478
18.06. HIGH RESOLUTION STUDIES OF ELECTRON EXCITATION PROCESSES IN XENON S.B. Elston, S.A. Lawton and F.M.J. Pichanick	480
18.07. AUTOIONIZED SPECTRA OF GROUP IIB METAL VAPOURS EXCITED BY ELECTRON IMPACT W.R. Newell, K.J. Ross and J.B.P. Wickes	482
18.08. SPIN POLARIZATION BY ELECTRON RESONANCE SCATTERING FROM NOBLE GASES T. Heindorff, J. Höfft and E. Reichert	484

	Page
Session 19 : POSITRON COLLISIONS	487
Thursday, July 19th	
Room 4	
11.00 - 12.50	
19.01. TOTAL CROSS SECTION MEASUREMENTS FOR 2 - 400 eV POSITRONS IN THE RARE GASES K.F. Canter, P.G. Coleman, T.C. Griffith and G.R. Heyland	489
19.02. POSITRON SCATTERING ON HELIUM, NEON AND ARGON ABOVE 4 eV B. Jaduszliwer and D.A.L. Paul	491.
19.03. RIGOROUS PRECISION P-WAVE POSITRON-HYDROGEN SCATTERING CALCULATION A.K. Bhatia, A. Temkin and H. Eiserike	493
19.04. AN EXCITED STATE OF POSITRONIUM HYDRIDE R.J. Drachman and S.K. Houston	495
19.05. FESHBACH RESONANCES IN POSITRON-HYDROGEN SCATTERING R.J. Drachman	496
19.06. POSITRON WITHIN SELF-CONSISTENT FIELD OF NEGATIVE IONS P.U. Arifov, R.M. Gataullin and V.M. Malyan	498
19.07. QUASI-STATIONARY STATES OF POSITRON AND NEGA- TIVE IONS AND ATOMS P.U. Arifov, A.A. Korzun, C.O. Tilishevsky, R.O. Vagin and G.S. Kim	500
19.08. HIGHER PARTIAL WAVES e^+ -H SCATTERING FOR ENER- GIES UP TO THE EXCITATION THRESHOLD Y.F. Chan and R.P. McEachran	502
19.09. POSITRON-HYDROGEN SCATTERING IN AN INTEGRAL APPROACH D. Basu, G. Banerji and A.S. Ghosh	503
19.10. COMPARISON OF ONE AND TWO CENTRE STUDIES OF LOW ENERGY SCATTERING BY DIATOMIC MOLECULES P. Baille, J.W. Darewych and S. Hara.	505
19.11. DIFFUSION OF POSITRONIUM IN A POLYATOMIC GAS D.M. Spektor and D.A.L. Paul	507