THIRD EUROP EAN CONFE RENCE

Proceedings of the Third International Ultraviolet Explorer Conference, Madrid, Spain, 10 –13 May 1982

Co-sponsored by
The European Space Agency (ESA)
Consejo Superior de Investigaciones Científicas (CSIC)
CONTENTS

Foreword xiii

INVITED PAPERS

The structure, energy balance and winds of cool stars
J L Linsky 3

Stellar evolution after IUE: 1. Massive stars during core hydrogen burning and massive close binaries
C de Loore & A Maeder 15

Stellar evolution after IUE: 2. A renewal for massive stars and WR stars
A Maeder & C de Loore 21

Ultraviolet properties of supernovae
N Panagia 31

Interstellar gas studies with IUE
M Pettini 37

Review of galactic ultraviolet astronomy
C de Jager 43

IUE observations of giant planets, satellites and asteroids
T Encrenaz 47

Stellar populations in normal galaxies
M Capaccioli 59

Active galaxies observed by IUE
M V Penston 69

Extragalactic ultraviolet astronomy and cosmology
M S Longair 75

Session 1 COOL-STARS

An analysis of the ultraviolet spectrum of T Tauri
C Jordan, M C de M Ferraz & A Brown 83
T Tauri stars: Not one but two transition regions
   C Bertout

Far UV line widths in RU Lupi
   M V Penston & M T V T Lago

On the MgII and FeII resonance lines in Herbig Ae
   stars: Preliminary analysis
   A Talavera et al

Contribution to the study of the dust envelope
   of AB Aurigae
   C Catala

The variable shell star HR 5999 VII. The extended
   atmosphere of a Herbig Ae star: Chromospheric features
   H R E Tjin A Djie & P S Thè

Ultraviolet resonance line emissions
   observed with IUE
   C Blanco et al

Chromospheric MgII emission in A5 to K5 main
   sequence stars from high resolution IUE spectra
   C Blanco et al

Rotational modulation of chromospheric
   features in late-type stars
   P B Byrne et al

IUE observations of classical Cepheids
   W Eichendorf et al

Search for Ti II 5 multiplet emissions in
   selected Delta Scuti variables
   F Castelli, M Fracassini & L E Pasinetti

FeII absorption lines in the IUE high-resolution
   spectra of F supergiants and shell stars
   D P Gilra

Outer atmospheric properties of Beta
   Draconis (G2 Ib-II)
   A Brown et al

A search for MgII h and k emission core variability
   in six main sequence stars
   J E Beckman et al

The transition region structure of 'solar-like' stars
   M J Fernandez-Figueroa, E de Castro & M Rego

High resolution EUV spectroscopy of
   56 Pegasi (KOIIp + wd)
   C Jordan et al
CONTENTS

Variability of cool stars at optical and ultraviolet wavelengths II - The binary (?) flare star AU Mic
   J L Linsky et al 165

Stellar activity in the short period subgroup of the RS CVn systems
   E Budding & A Giménez 169

Session 2  CATAclySMIC VARIABLES & X-RAY SOURCES

Ultraviolet observations of nova Aquila 1982
   M A J Snijders, M J Seaton & J C Blades 177

Simultaneous UV and optical observations of dwarf novae through outburst
   B J M Hassall et al 179

The peculiar energy distribution of the old-nova GK Per (1901)
   A Bianchini & F Sabbadin 187

The orbital variations of the UV spectrum of the old nova HR Del
   Y Andrillat, M Friedjung & P Puget 191

The spectrum of the symbiotic star CH Cyg in December 1981
   M Hack, M Persic & P L Selvelli 193

Short-time spectral variations of the old nova RR Pic
   P L Selvelli 197

The spectrum of the old nova V 603 Aql between 2000 and 3200 Å
   P L Selvelli & A Cassatella 201

A review of the ultraviolet results about symbiotic stars
   M Friedjung & R Viotti 203

Line shapes from the symbiotic star V 1016 Cyg
   H Nussbaumer 209

A comparative study of IUE spectra of cataclysmic variables
   C la Dous 213

Strong UV excess radiation in cataclysmic variables
   W Wargau, H Drechsel & J Rahe 215

Phase-dependant UV spectra of UX UMa
   A R King 219

Far UV observations of MV Lyrae in two different states
   L Chiappetti et al 221
UV observations of V348 Sgr
A Heck et al

The UV variability of T Cr B
A Cassatella et al

Ultraviolet, optical and infrared observations
of HDE 245770/A 0535+26
F Giovannelli et al

The ultraviolet spectra of newly discovered
hard X-ray cataclysmic variables
J M Bonnet-Bidaud, M Mouchet & Ch Notch

Ultraviolet observation of V1341 = Cyg X2
L Chiappetti et al

Ultraviolet observations of X-ray bursters
G Hammerschlag-Hensberge, J van Paradijs & J E McClintock

On the UV variability of LSI + 61° 303 (EGT 0236)
E G Tanzi et al

IUE high resolution observations of hot stars
emitting coronal X-rays
L Bianchi

UV photometric and line-width variability of LMC X-4
M van der Klis et al

The interacting binary KX And
F Paterson-Beeckmans et al

Session 3 HOT STARS & BINARIES

Does the WC6 star HD76536 have a compact companion?
G E Bromage et al

Mass loss from extreme helium stars
U Heber, W -R Hamann & D Schönberner

SK-67/111 and R 50, two Magellanic cloud emission line stars
F J Zickgraf et al

H-R diagram for early type Magellanic cloud members
K Nandy et al

A study of line profile variability in O-stars
R G Costero et al

Empirical atmospheric velocity patterns from
combined IUE and visual observation: The Be stars
V Doazan & R N Thomas

Behaviour of the energy distribution of 59 Cyg in
the far-ultraviolet and in the visible
L Divan & J Zorec
Envelope structure of the cyclic V/R variable shell stars
A M Hubert-Delplace et al 295

Non-LTE analysis of the sdO-star Feige 110
U Heber et al 297

Ultraviolet spectroscopy and effective temperature variations in the extreme helium star BD + 13°3224
A E Lynas-Gray, P W Hill & D Schönberner 301

Analysis of Feige 66, another extremely silicon-deficient OB subdwarf
B Baschek, P Höflich & M Scholz 309

The metallicity of the extreme helium star BD+10°2179
U Heber 313

Radiative transfer calculations for the C IV λ 155 nm resonance lines in planetary nebulae
J Köppen & R Wehrse 317

The planetary nebula NGC 6572
M Greving et al 323

The UV stellar classification programme
A Heck et al 327

CV Serpentis: Still eclipsing
I D Howarth, A J Willis & D J Stickland 331

A study of CQ Cephei - far UV to infra-red
D J Stickland et al 335

UV resonance line formation in Zeta Aur/VV Cep systems
K Hempe & D Reimers 339

Evolution of the subdwarf-O eclipsing binary LB 3459
R P Kudritzki et al 343

New observations of the interacting binary SV Cen
H Drechsel, W Wargau & J Rahe 349

The IUE survey of W Umα-type binaries
S M Rucinski & O Vilhu 351

Mass-loss rate from IUE observations of Zeta Aur systems
A Che, K Hempe & D Reimers 355

System parameters and mass-loss of ζ Sge
D Reimers & K P Schröder 359

Analysis of UV spectra of Beta Lyrae
H Cugier 363
Session 4  THE INTERSTELLAR MEDIUM

Analysis of extinction curves towards the SCO OB1 association
  S Aiello, B Barsella & A Bonetti

Anomalous extinction in the Cepheus OB 3 association
  B Barsella, N Panagia & M Perinotto

Dust properties in stellar groups
  P Patriarchi, M Perinotto & B Barsella

Interstellar extinction in anomalous regions
  J C Blades et al

Ultraviolet interstellar extinction in the SMC
  from IUE stellar observations
  M L Prévot et al

Interstellar lines in high resolution IUE spectra: Paper I
  Groningen Data Reduction package and technical results
  D P Gilra et al

Interstellar lines in high resolution IUE spectra: Paper II
  Highlights of preliminary astronomical results
  D P Gilra, T H Pux & E M Arnal

Studies of interstellar CO
  W B Somerville et al

High velocity gas components associated with
  supergiant stars and interstellar gas
  B Bates, W Brown-Kerr & D L Giaretta

Depletion of interstellar zinc
  A W Harris, G E Bromage & J C Blades

Element depletions in interstellar gas
  A P Phillips, P M Gondhalekar & M Pettini

The Monoceros Loop: A supernova remnant interacting
  with the Rosette Nebula?
  A Vidal-Madjar et al

The violent interstellar medium associated with
  the Carina Nebula
  C Laurent, J A Paul & M Pettini

Interstellar gas in the direction of the large
  Magellanic cloud
  D Maslen et al

Highly ionized gas in the galactic halo
  K A West & M Pettini

Distribution of gas in the halo of the galaxy
  J C Blades et al

Abundances in the Magellanic stream
  M V Penston et al
Contents

Session 5  THE SOLAR SYSTEM

The spectrum of comets as derived from IUE observations
M C Festou et al

Are comets made of H₂O-ice?
M K Wallis

Ammonia in the Jovian stratosphere: A comparison of
photochemical calculations with IUE observations
K H Fricke et al

Observations of the Lyman-Alpha albedo of Uranus
K H Fricke & J Darius

Session 6  FUTURE UV EXPERIMENTS

Current NASA studies for a Far-Ultraviolet
Spectrographic Explorer (FUSE)
J Linsky et al

Magellan - Far and extreme ultraviolet
spectrographic observatory
S di Serego Alighieri

Exotic stellar objects: Research for the
proposed satellite Magellan
M Hack

The interest of observing main sequence
objects with Magellan
F Praderie

Observations in the solar system with the proposed
earth-orbiting observatory Magellan
R Prange

Session 7  EXTRAGALACTIC OBJECTS

UV energy distribution in elliptical galaxies
F Bertola, M Capaccioli & J B Oke

The IUE spectrum of NGC 4258
R Barbon, M Capaccioli & G Longo

Optical and ultraviolet spectrophotometry of
globular clusters in the Magellanic clouds
C Cacciari et al

UV observations of the young blue globular
clusters in the LMC
A Cassatella & E H Geyer

Optical and ultraviolet observations of the X-ray
globular cluster Bo158 in M31
C Cacciari et al
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinated observations of Seyfert I galaxies</td>
<td>529</td>
</tr>
<tr>
<td>W Wamsteker et al</td>
<td></td>
</tr>
<tr>
<td>Results from the NGC 4151 ultraviolet laboratory</td>
<td>533</td>
</tr>
<tr>
<td>G E Bromage et al</td>
<td></td>
</tr>
<tr>
<td>Monitoring the UV spectrum of the Seyfert Galaxy NGC 4593 II. Short term variability</td>
<td>537</td>
</tr>
<tr>
<td>J Clavel</td>
<td></td>
</tr>
<tr>
<td>NGC 7469, a Seyfert galaxy observed with IUE</td>
<td>543</td>
</tr>
<tr>
<td>A Elvius, B A M Westin &amp; J Lind</td>
<td></td>
</tr>
<tr>
<td>Line profiles and continuum radiation in Seyfert galaxies</td>
<td>549</td>
</tr>
<tr>
<td>C Boisson &amp; M H Ulrich</td>
<td></td>
</tr>
<tr>
<td>Secondary ultraviolet sources in the Seyfert-2 galaxy NGC 1068</td>
<td>551</td>
</tr>
<tr>
<td>M A J Snijders, S A Briggs &amp; A Boksenberg</td>
<td></td>
</tr>
<tr>
<td>IUE observations of NGC 3783</td>
<td>559</td>
</tr>
<tr>
<td>P Barr</td>
<td></td>
</tr>
<tr>
<td>Markarian 108. A tidaly-torn off or turned on galaxy?</td>
<td>565</td>
</tr>
<tr>
<td>P Benvenuti, C Casini &amp; J Heidmann</td>
<td></td>
</tr>
<tr>
<td>Ly α absorption at CZ = 8200 km s⁻¹ in NGC 1275</td>
<td>569</td>
</tr>
<tr>
<td>S A Briggs, M A J Snijders &amp; A Boksenberg</td>
<td></td>
</tr>
<tr>
<td>The ultraviolet spectrum of the high-redshift BL Lac object 0215+015</td>
<td>573</td>
</tr>
<tr>
<td>J C Blades et al</td>
<td></td>
</tr>
<tr>
<td>Multifrequency observations of the OVV quasar 1156+295</td>
<td>577</td>
</tr>
<tr>
<td>A E Glassgold, J N Bregman &amp; P J Huggins</td>
<td></td>
</tr>
<tr>
<td>UV observations of X-ray emitting QSOs and BL Lac objects</td>
<td>581</td>
</tr>
<tr>
<td>L Chiappetti et al</td>
<td></td>
</tr>
<tr>
<td>Simultaneous multifrequency observations of BL Lac objects and violently variable quasars</td>
<td>589</td>
</tr>
<tr>
<td>J N Bregman, A E Glassgold &amp; P J Huggins</td>
<td></td>
</tr>
<tr>
<td>Cosmology from IUE observations of quasars?</td>
<td>593</td>
</tr>
<tr>
<td>C M Gaskell</td>
<td></td>
</tr>
<tr>
<td>The formation of the broad emission line regions in QSOs</td>
<td>595</td>
</tr>
<tr>
<td>J E Dyson &amp; J J Perry</td>
<td></td>
</tr>
<tr>
<td>DATA PROCESSING</td>
<td></td>
</tr>
<tr>
<td>The IUE spectra of ET And: Their reduction and variation</td>
<td>601</td>
</tr>
<tr>
<td>M Barylak</td>
<td></td>
</tr>
<tr>
<td>Late paper - Stellar winds, C de Loore</td>
<td>611</td>
</tr>
<tr>
<td>List of participants</td>
<td>616</td>
</tr>
</tbody>
</table>