

**ACTIVITIES AT BELGRADE  
ASTRONOMICAL  
OBSERVATORY ON  
COLLECTING OF DATA AND  
THEIR ORGANIZATION IN A  
DATABASE**

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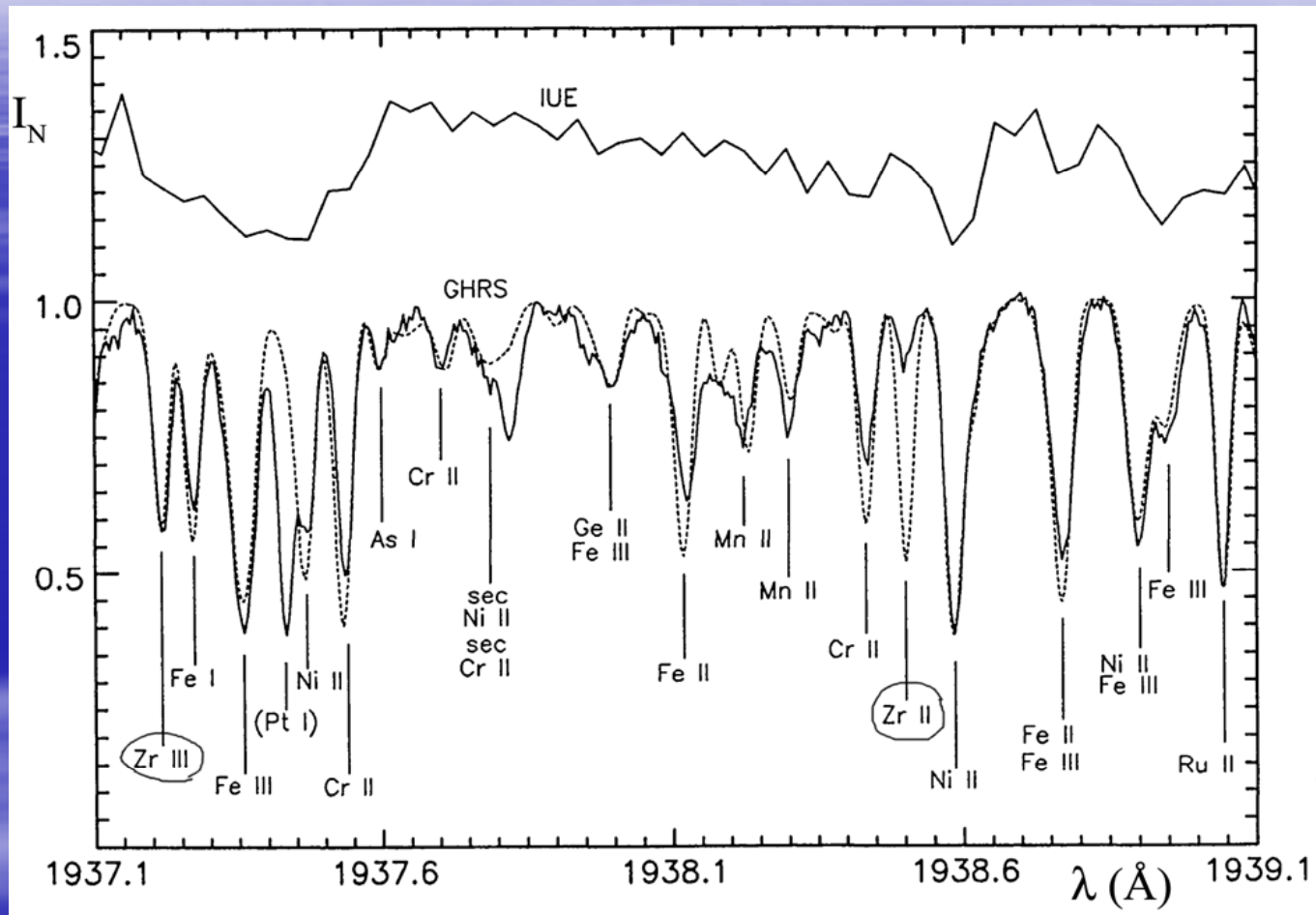
- STARK BROADENING – BROADENING BY INTERACTION WITH CHARGED PARTICLES

- - ASTROPHYSICAL PLASMAS
- - LABORATORY PLASMAS
- - TECHNOLOGICAL PLASMAS

- - STELLAR PLASMA DIAGNOSTIC
- - ABUNDANCE DETERMINATIONS
- - STELLAR SPECTRA MODELLING,  
ANALYSIS AND SYNTHESIS
  - CHEMICAL STRATIFICATION
  - SPECTRAL CLASSIFICATION
  - NUCLEAR PROCESSES IN STELLAR  
INTERIORS
  - RADIATIVE TRANSFER
  - STELLAR OPACITIES

# NEEDS FOR LARGE STARK BROADENING DATA SET

- - DEVELOPMENT OF COMPUTERS
- - SATELLITE BORNE SPECTROSCOPY
- PHOENIX CODE FOR MODELLING OF STELLAR ATMOSPHERES – MORE THAN 500 MILLIONS TRANSITIONS



# The useful data which might be organized in databases.

- a) References or the references with
- citations, which may be published as a book but also organized as a database.
  - E.g. Science Citation Index, Astrophysical Data System

- b) Data collections from literature or other sources.
- c) Critically evaluated set of data .
- For example critically evaluated Stark broadening data published by Nikola Konjevic et al.
- d) Astronomical catalogues. Such catalogues are published in Belgrade Astronomical Observatory by Sofija Sadzakov, Miodrag Dacic, Zorica Cvetkovic, Georgije Popovi'c...

- e) On Belgrade Astronomical Observatory a large
- amount of photographic plaques with observational data are stored.
- f) Journals and publications



# BELDATA

- a) Stark broadening parameters
- b) Spectra of active galaxies, observed or reduced by the AOB staff
- c) stellar catalogues observed and deduced in Belgrade
- d) Abstracts of papers (and later full papers) in publications of the Belgrade Astronomical observatory.
- e) Scanned photoplaques

# COLLABORATION

MOLAT – Observatoire de Paris – Meudon  
(In frame of Virtual Observatories), Marie-  
Lise Dubernet, Sylvie Sahal-Brechot



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- Eclipse 1999
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- INI YU Branch
- Medias

### Welcome to Beldata Astronomical Database

#### Search conditions

Wavelength +/-   
 cm-3 pertuber density  
 Transition  
 Temperature

#### Currently available catalogues:

- Select all**
- J/A+AS/105/245 Stark broadening Al XI and Si XII (Dimitrijevic+ 1994)
  - J/A+AS/105/243 Stark broadening of Be lines (Dimitrijevic+ 1994)
  - J/A+AS/119/369 Stark broadening. XIV: Be III and B III (Dimitrijevic+, 1996)
  - J/A+AS/107/349 Stark broadening K. (Dimitrijevic+, 1994)
  - J/A+AS/109/551 Stark broadening. XII. OIV & OV (Dimitrijevic+, 1995)
  - J/A+AS/115/351 Stark broadening. XIII. C V and P V (Dimitrijevic+, 1996)
  - J/A+AS/119/529 Stark broadening : Sr I (Dimitrijevic+, 1996)
  - J/A+AS/122/533 Stark broadening of P IV spectral lines (Dimitrijevic+ 1997)
  - J/A+AS/127/543 Stark broadening of S V lines (Dimitrijevic+ 1998)
  - J/A+AS/128/359 Stark broadening of Ca IX and Ca X lines (Dimitrijevic+ 1998)
  - J/A+AS/129/155 Si XI & Si XIII lines Stark broadening (Dimitrijevic+ 1998)


12:08 Tuesday 15 October 2002  
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### BelData query results

**Query conditions:**  
Temperature : 100000  
Wavelength between 4300 and 5700

**J/A+AS/109/551 Stark broadening. XII. OIV & OV (Dimitrijevic+, 1995)**

Number of rows : 2

N	El	Tr	lambda	C	T	n_We	We	n_de	de	n_Wp	Wp	n_dp	dp	n_WHell	WHell	n_dHell	dHell
cm-3			0.1nm	0.1nm/cm3	K		0.1nm		0.1nm		0.1nm		0.1nm				
1e+17	O V	3P 3D	5591.4	56	100000		0.189		-0.00644		0.00829		-0.0093		0.0162		-0.0187
1e+18	O V	3P 3D	5591.4	56	100000		1.89		-0.0617		0.0829		-0.0916		0.162		-0.179

**J/A+AS/115/351 Stark broadening. XIII. C V and P V (Dimitrijevic+, 1996)**

Number of rows : 3

N	El	Tr	lambda	C	T	n_We	We	n_de	de	n_Wp	Wp	n_dp	dp	n_WHell	WHell	n_dHell	dHell
cm-3			0.1nm	0.1nm/cm3	K		0.1nm		0.1nm		0.1nm		0.1nm				
1e+17	P V	6P 7S	4877	11	100000		2.5		0.36		0.344		0.296	*	0.698	*	0.582
1e+17	P V	5P 5D	5143.7	10	100000		1.19		0.0432		0.159		0.101		0.317		0.201
1e+18	P V	5P 5D	5143.7	10	100000		11.9		0.375	*	1.59	*	0.977		0		0

**J/A+AS/127/543 Stark broadening of S V lines (Dimitrijevic+ 1996)**

Number of rows : 4

N	El	Tr	lambda	C	T	n_We	We	n_de	de	n_Wp	Wp	n_dp	dp	n_WHell	WHell	n_dHell	dHell
cm-3			0.1nm	0.1nm/cm3	K		0.1nm		0.1nm		0.1nm		0.1nm				
1e+17	S V	5P 5D	4483.6	11	100000		0.809		0.0329		0.107		0.0588		0.213		0.117
1e+17	S V	4D 4F	4906.8	49	100000		0.352		-0.0133		0.0334		-0.0146		0.0662		-0.0292
1e+18	S V	5P 5D	4483.6	11	100000		8.09		0.301		1.07		0.589		0		0
1e+18	S V	4D 4F	4906.8	49	100000		3.52		-0.126		0.334		-0.144		0.66		-0.277

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