

Query NIST Bibliographic Databases for Fe XV (new window)

Wavelengths Transition Probabilities

XV: 84 Lines of Data Found

wavelength range: 100 - 500 Å

wavelength in: vacuum below 2000 Å, air between 2000 and 20000 Å, vacuum above 20000 Å

heat relative intensity: 1000

Observed Wavelength (Å)	Ritz Wavelength (Å)	Rel. Int.	A <sub>ki</sub> (s <sup>-1</sup> )	Acc.	E <sub>i</sub> (cm <sup>-1</sup> )	E <sub>k</sub> (cm <sup>-1</sup> )	Configurations	Terms	J <sub>i</sub> - J <sub>k</sub>	g <sub>i</sub> - g <sub>k</sub>	Type	TP Ref.	Line Ref.
131.216	131.216	1.6e+06	D	0	-	762 099	2p <sup>6</sup> 3s <sup>2</sup> - 3s3d	<sup>1</sup> S - <sup>1</sup> D	0 - 2	1 - 5	E2	1	
171.913	171.913	4.3e+04	E	0	-	581 808	2p <sup>6</sup> 3s <sup>2</sup> - 3p <sup>2</sup>	<sup>1</sup> S - <sup>3</sup> P	0 - 2	1 - 5	E2	1	
178.702	178.702	4.1e+05	E	0	-	559 600	2p <sup>6</sup> 3s <sup>2</sup> - 3p <sup>2</sup>	<sup>3</sup> S - <sup>1</sup> D	0 - 2	1 - 5	E2	1	
191.408	191.408	3.5e+08	E	239 660	-	762 099	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>1</sup> D	1 - 2	3 - 5		3	
194.067	194.067	3.8e+08	E	559 600	-	1 074 987	3p <sup>2</sup> - 3p3d	<sup>1</sup> D - <sup>1</sup> P <sup>o</sup>	2 - 1	5 - 3		M8	M8
196.741	196.741	1.6e+07	E	253 820	-	762 099	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>1</sup> D	2 - 2	5 - 5		3	
198.867	199	199		559 600	-	1 062 515	3p <sup>2</sup> - 3p3d	<sup>1</sup> D - <sup>1</sup> F <sup>o</sup>	2 - 3	5 - 7			M8
208.096	208.02	60		581 808	-	1 062 515	3p <sup>2</sup> - 3p3d	<sup>3</sup> P - <sup>1</sup> F <sup>o</sup>	2 - 3	5 - 7			M8
220.22	220.23	1		948 513	-	1 402 392	3p3d - 3p <sup>2</sup>	<sup>1</sup> D <sup>o</sup> - <sup>1</sup> D	2 - 2	5 - 5			M8
224.278	224.278	1		233 842	-	679 785	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> D	0 - 2	1 - 5	M2	1	
224.754	224.754	90		233 842	-	678 772	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> D	0 - 1	1 - 3		3,M8	M8
226.220	226.220	1		928 241	-	1 370 331	3p3d - 3p <sup>2</sup>	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> F	2 - 2	5 - 5			M8
226.372	226.372	1		239 660	-	681 416	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> D	1 - 3	3 - 7	M2	1	
227.206	227.2	220		239 660	-	679 785	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> D	1 - 2	3 - 5		3,M8	M8
227.734	227.7	140		239 660	-	678 772	3s3p - 3s3d	<sup>3</sup> P <sup>o</sup> - <sup>3</sup> D	1 - 1	3 - 3		3,M8	M8
229.746	230	60		559 600	-	994 852	3p <sup>2</sup> - 3p3d	<sup>1</sup> D - <sup>3</sup> D <sup>o</sup>	2 - 3	5 - 7			M8

# Atomic Data Management at NIST

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**NIST**  
National Institute of  
Standards and Technology  
U.S. Department of Commerce

# NIST's Mission

- *to promote U.S. innovation and industrial competitiveness by advancing **measurement science, standards, and technology** in ways that enhance economic security and improve our quality of life*
  - ...
  - *to measure, calculate, **critically compile**, and **disseminate reference data on atomic structure** and fundamental constants in support of basic research, commercial development, and national priorities*
  - ...



# Atomic Databases/Tools

## Numerical

Premier source of atomic data in the world

Recommended and critically evaluated  
atomic data

Advanced search, data integrity, graphics, *bibliography*

## Bibliographic

Updated almost daily!

Contain added value (keywords)

Invaluable up-to-date access to existing data

## Online codes

No data?  
No problem...  
but beware!

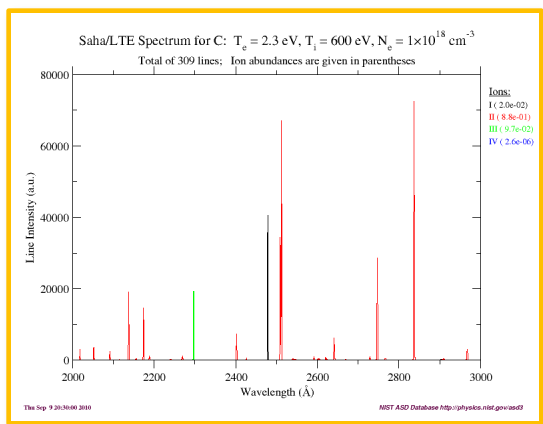
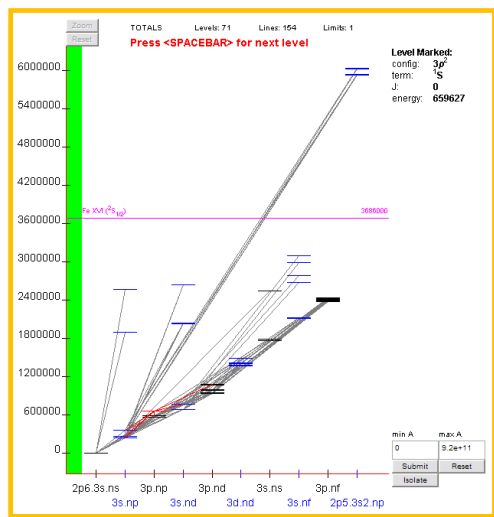
Extensive help system

Fast, reliable, fed by feedback

**RDBMS**

# Examples

<http://www.nist.gov/physlab/data/index.cfm>



Atomic Spectra Database

**250,000**  
lines and levels

**1500**  
queries/day,  
2/3 of PL

Version 4

Since 1995

Atomic Lines/Levels Bibliographic Database

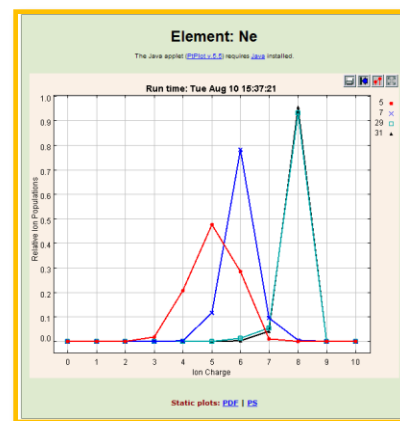
**15,300**  
references

Coverage:  
**1802**--today

FLYCHK code

~**350** users

Various plasma  
emission  
parameters



# Key issues in atomic data(base) development

- **Data quality**
  - Often overlooked in favor of data volume
  - **Recommended/evaluated data** is of highest importance
  - Data compilation is a major effort
- **Derived data**
- Data volume is not exceedingly large
  - DBMS reliability is important
- **Data exchange**
  - Well-designed standards are needed
  - GENIE engine at IAEA
  - XML Schema: XSAMS
  - International involvement is important
- **Online simulations**
  - Cloud computing?
  - Distributed approach to scientific computing

**From collection of (atomic) data  
to collection of (atomic) data-generating software?..**