



# Distributed information system on molecular spectroscopy

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#### **Information systems for atmospheric molecular spectroscopy**

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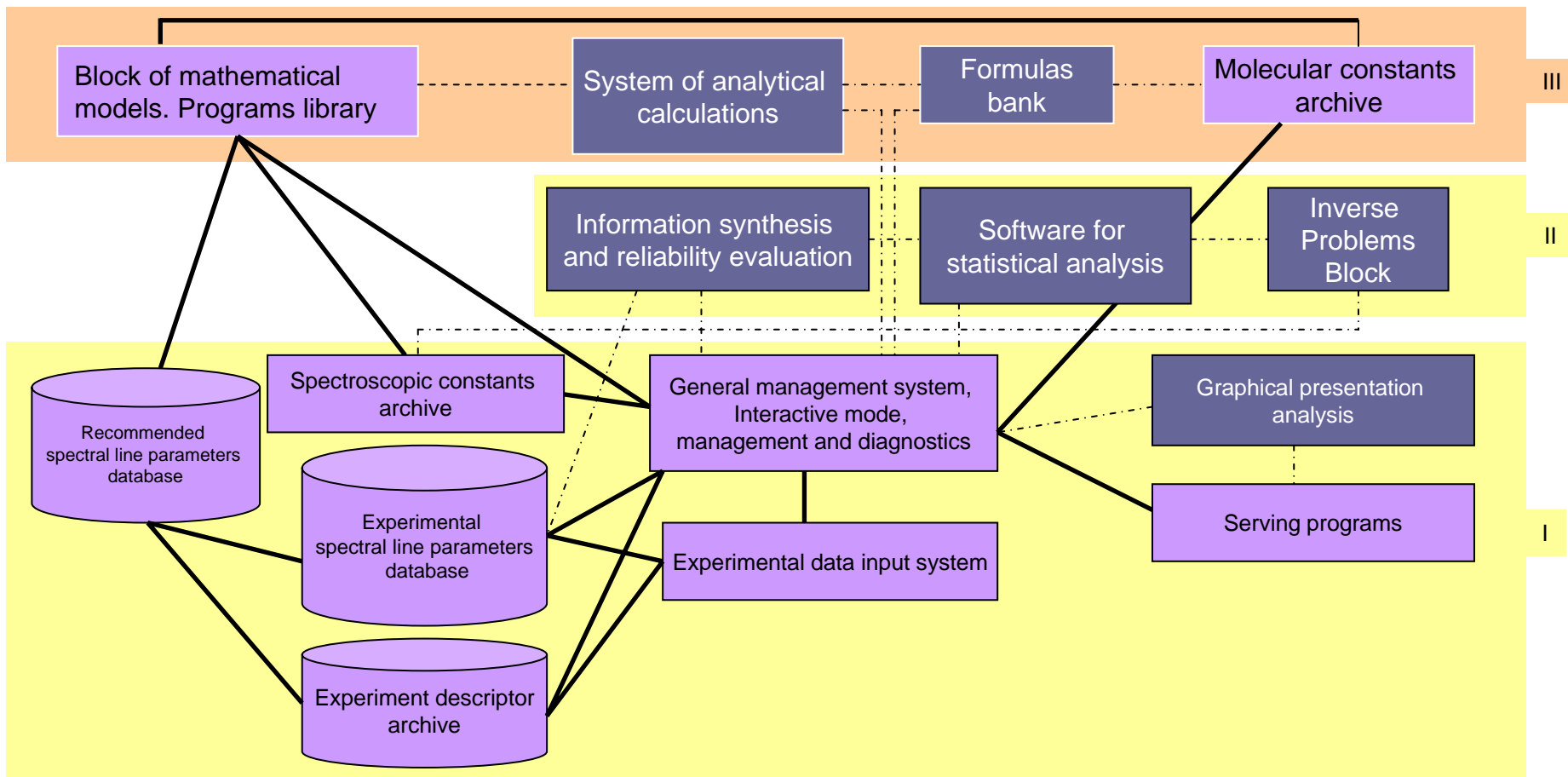
**Web-service of publications data base synchronization**

**Web-service for the formation of a homogeneous set of inverse and direct problems solution's properties in a distributed information system**

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## Information systems for atmospheric molecular spectroscopy

First publications

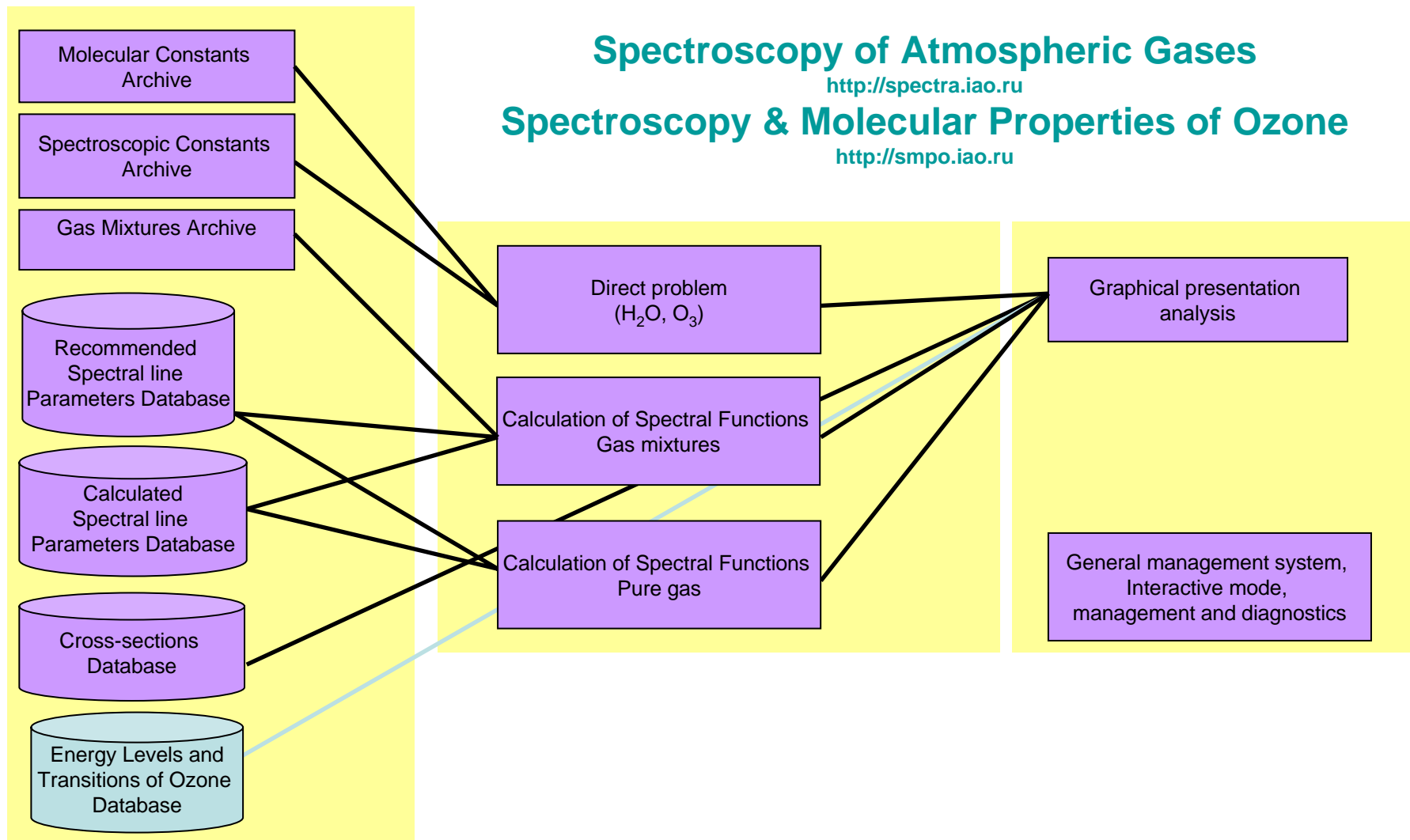


Voitsekhovskaya O.K., Zuev V.E., Tyuterev V.I.G., Information systems for atmospheric molecular spectroscopy, Atmospheric Optics, v. 1, **1988**, no.3, p.3-15. (in Russian)

Zuev V.E., Voitsekhovskaya O.K., Tyuterev V.I.G., Development of Information System for Atmospheric Spectroscopy, Proceedings of Atmospheric Spectroscopy Applications Workshop 6-8 June **1990, Moscow**, ed. A.Barbe, Yu.Ponomarev, R.Zander, p.153-157.

# Information systems for atmospheric molecular spectroscopy

Web approach



Mikhailenko S.N., Babikov Yu.L., Golovko V.F. Information-calculating system "Spectroscopy of Atmospheric Gases". The structure and main functions, *Atmospheric and Oceanic Optics*, vol. 18, 2005, No.09, p.685-695

Mikhailenko S.N., Babikov Yu.L., Tyuterev V.I.G., A.Barbe, The DataBank of ozone spectroscopy on WEB (SM&PO), *Computational Technologies*, v.7, Special Issue, 2002, p. 64-70 (in Russian)

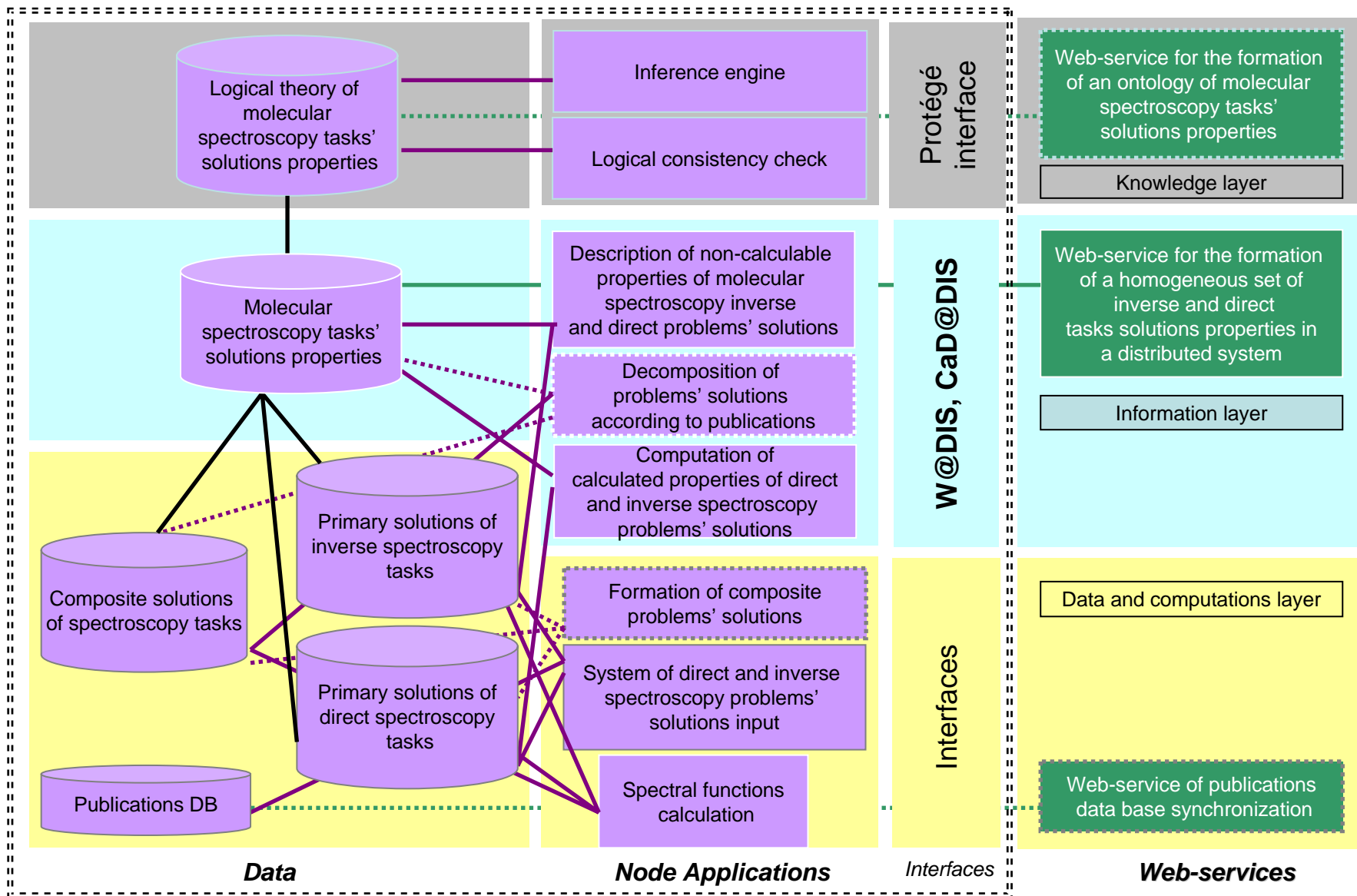


## Disadvantages of the previous generation of information systems

1. There are data in these information systems, but there are no their properties. The absence of the properties does not allows one make decision on validity of the data. In fact user of these information systems has one criteria of data validity – his own faith.
2. These information systems have no information resources oriented on automatic semantic processing.
3. These information systems have no facilities for automatic exchange of their data with the other information systems.

# Distributed Information System for Atmospheric Molecular Spectroscopy

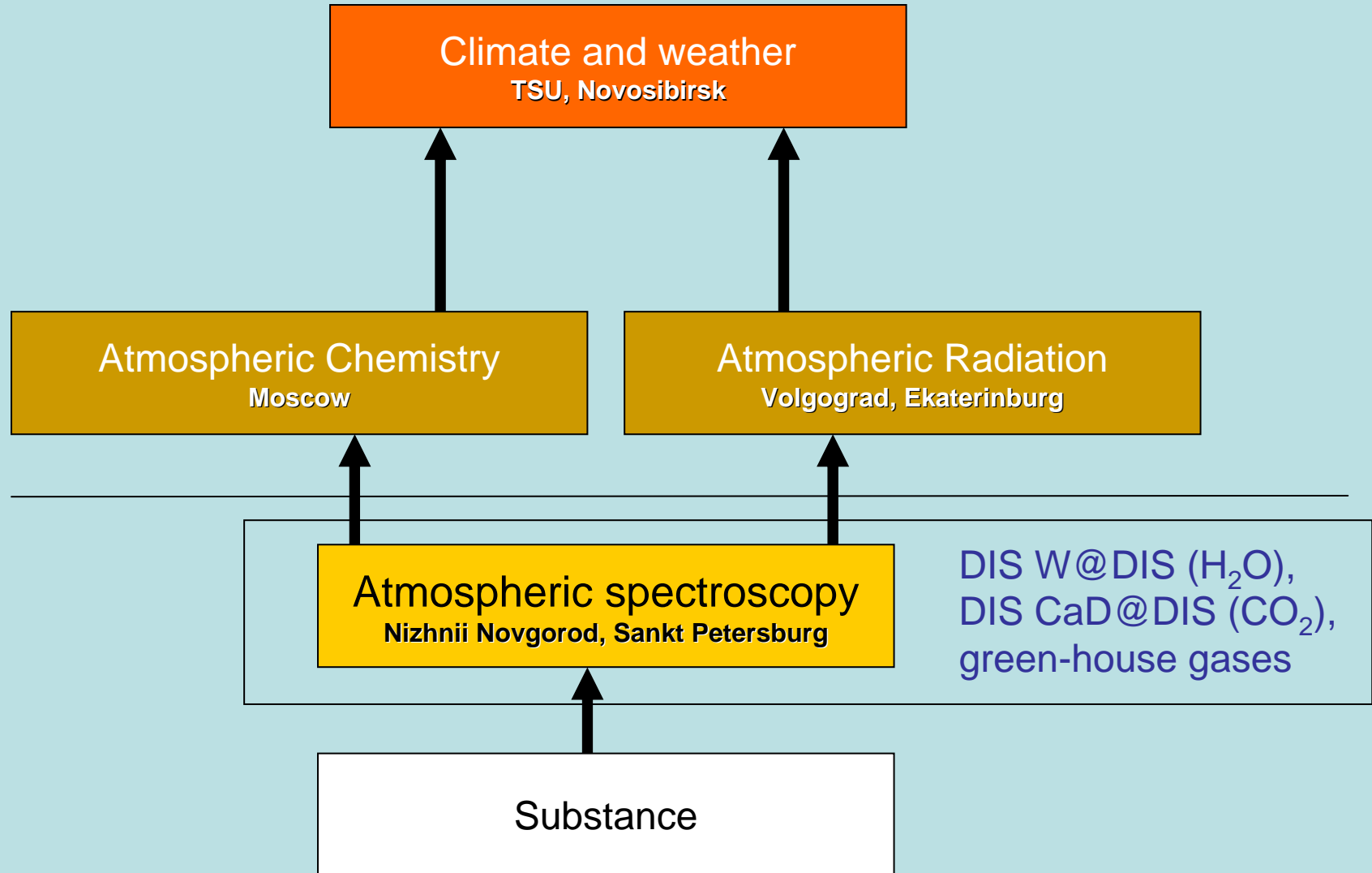
## Semantic Web approach





## Horizontal Hierarchy of Domains

ATMOS portal



## Web-service of publications data base synchronization

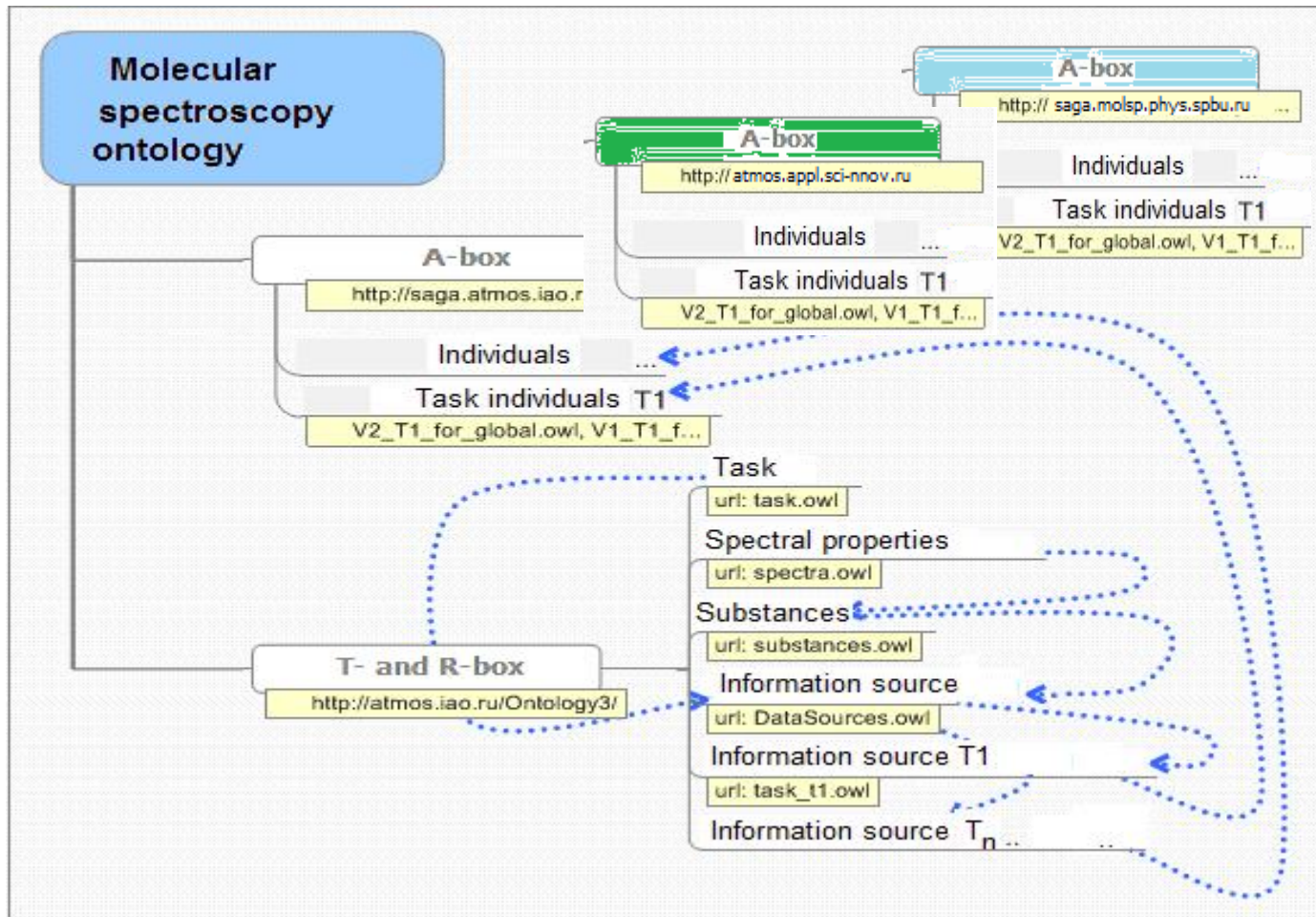
### Distributed ICS on molecular spectroscopy



### Distributed ICS on atmospheric radiation

ICS on climate (TSU, Institute of Computational Technologies SB RAS)

# Web-service for the formation of a homogeneous set of inverse and direct problems solution's properties in a distributed information system



Schema of molecular spectroscopy applied ontology relations